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Topic III

POLICE ORGANIZATION – STRUCTURE, FUNCTIONING AND HUMAN RESOURCES

THE MAIN FEATURES AND CHARACTERISTICS OF THE ORGANISATIONAL CULTURE OF THE HUNGARIAN NATIONAL POLICE

Gabor Kovacs, PhD
National University of Public Service, Budapest, Hungary

Abstract: One of the key areas of management and leadership science is the analysis of organisational culture of certain organisations because it appears in a specific way in the life of a community. The life of organisations and certain communities are led by legal and normative regulations. Behind these regulations, the communities and the different organisations have an independent hidden life (de Saint-Exupéry, 1943).

Every organisation has its own written or unwritten cultural rules, based on this it has influence on the activity of its members, on their behaviour and their relations between each other. The effect of the organisational culture determines the effective activity of the organisation and community.

The origins of the organisational culture of the law enforcement organisations have specific characteristics. Its characteristics and components differ from other civilian organisations. The development of the law enforcement organisations in continental Europe derives from military organisations. The organisational culture of the military organisations had a strong effect on the law enforcement organisations in Europe. The communities found out that, with the help of the organisational culture, they can establish the favourable personal and behavioural forms of their employees according to the interests of the organisation.

The improvement of the law enforcement organizations is a constant process, where the responsibility of the members is indisputable.

The aim of this paper is to clarify these complicated questions and show the different levels of the organisational culture of the Hungarian National Police. It can be a good example for other police organisations.

Keywords: culture, organisational culture, the levels of the law enforcement culture.

INTRODUCTION

It is well known that the members of the organisation cannot get to know the relevant requirements only from the written rules of the organisation. However, adapting the elements of the organisational culture facilitates this integration process. The culture of the law enforcement organisations is specific, their characteristics and components are very different from other organisations. The basis of the development of the law enforcement organisations in continental Europe was given by the organisational culture of national defense and military organisations.

THE ORIGIN OF THE ORGANISATIONAL CULTURE, POSSIBILITY OF OCCURING[1]

The organisational culture[2] is a term, which approaches the idea of organisational togetherness through cultural basis. The togetherness embodies the life of the organisation, which means that it assumes the abandonment of personal pursuit, behaviour and characteristics, but in exchange the organisation gives them new behavioural forms and characteristics successfully integrated into the system. This is characteristic of every organisation.

The basic sources of an organisational culture of a typical organisation are the following:

- the history of the organisation, the common past of the organisation and the way of thinking;
- the external impacts which have a role on the organisation;
- the perception of the society, a value which the members of the society accept and state extensively;
- the factors which have an impact on the organisation, which influences the development of the organisational culture;
- the will and the behaviour of the head of the organisation.

The police organization has to face a number of problems that cause challeneges in the organization.

The main changes are the co-living and co-working of multiple generations within one organization

Currently, mostly the X, Y and Z generations are represented in the police organization. These generations have different communication, motivation and different expectations. The generation gap causes many problems during the police duty. Generational changes and co-living of multiple generations live together inside the organization. Different generations have different expectations. Therefore, their image about police and their expectations against the police can be different, too.

Hierarchy inside the organizational structure

The police organization is a hierarchical organization. There are various different units, subunits. The hierarchy of the organization is very complicated, it consists of the duty chane line between the superiors and subordinates.

The citizens do not have information about the police structure; they only see whether the police officers work effectively or not. The emotions of the citizens are very important. In different cases and different situations, the citizens are juding the acting police officer's work. Various aspects of the police officers' work are judged in different ways by the citizens. A police officer is nessesary to have a positive meaning as a police profession nowadays. Police officers working in the streets are faced with many negative emotions, at the same time they

1 Hofstede's Cultural Dimensions Understanding Workplace Values Around the World. www.mindtools.com/pages/article/newLDR_66.htm. (Downloaded: 2018. 03. 02.)
Hofstede: National culture modell (A nemzeti kultúra modellje). http://www.jgypk.u-szeged.hu/tamop13e/tananyag_html/sportkultura/hofstede_nemzeti_kultra_modellje.html (Downloaded: 2018.03.13.)

2 The Hungarian Explanatory Dictionary (A magyar nyelv értelmező szótára) http://mek.oszk.hu/adatbazis/magyar-nyelv-ertelmezo-szotara/kereses.php?kereses=kult%C3%BAra (Downloaded: 2018.02.05.)

shall not demonstrate their own emotions. Their reactions have to be objective; they have to be able to remain sober.

Life long learning phenomenon becomes basic requirement

During the professinal police carrier, a police officer must acquire different relevant knowledge; the police staff shall collect a certain number of educational credits within the organization as well. The Hungarian police further education system provides tailor-made programs for police officers.

Finding the right balance between work and life

This problem is not only the police officer's problem. The stress factor in the police work is extremly high. The problem is not only the quantity of the working time but also the quality of the situations, events. Police officers have to learn how to handle it. During their work, police officers learn stress relief techniques and what social support is available.

Fast development of technology devices

Generation gaps may cause some problems, because in some cases the younger generation learn to use new different devices in a professional manner more easily, although the organization is not always able to keep pace with the latest technology devices available. At the same time, this is frustrating for any member of the organization. After all, even they can be followed through social media. Recordings of some police actions have been published in the internet without the original context.

Changes in the legal and political environment

These changes almost always affect the whole organization. This is an important and very significant factor in the police organization. The police organization represents the legitimacy and political independence. All members of an organization have their own views that do not necessarily match the views they have to represent from their organisational roles.

Encounters of various cultures and subcultures

During their duties, the police officers face different cultures and subcultures. An example is the case of the migration pressure evolved in year 2015-2016. This pressure has a strong effect on the staff members of the police organization. Most of the police officers were represented in a positive way in the community, it is crucial to be able to adapt to heterogeneous environments, the multicultural or even multiple nationalities.

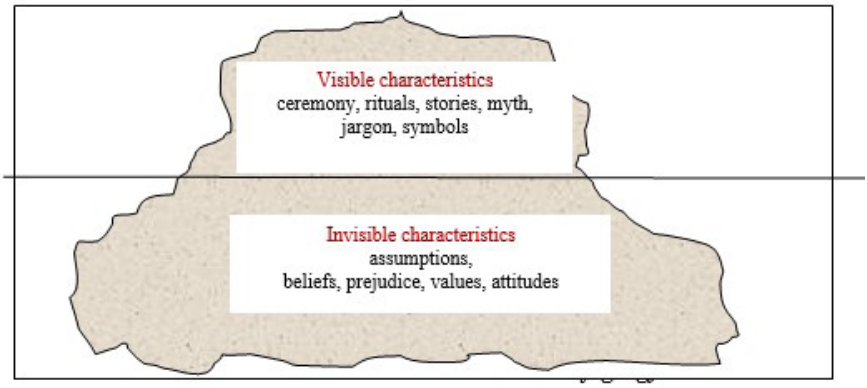
The Hungarian Police have made efforts to change the culture of police actions. As a part of this, the emphasis has been shifted. The stress on the service providing nature of the police has become important, the police providing assistance in this process. This is of key importance for the entire police staff.

When a police officer stops a citizen, the citizen may not see that the police officer might be tired, stressed, do not pay attention to their names, he does not care about their hobbies or private opinions regarding the given case. It is crucial how police officers handle such situations including their appearance, presence and attitude demonstrated to local citizens, tourists or even foreign tourists.

The appearance of the organisational culture

From an outside perspective, the organisational culture is composed of visible and invisible elements. The members of the organisation experience both, but as the leading level rises, the level of the invisible characteristics perception decreases. These characteristics are important in the organisation because the members adapt the organisational culture through observation (Bibó, 1986).

According to academic literature, the organisational culture looks like an iceberg.



2. ábra: *A szervezeti kultúra – jéghegy modell*

Picture 1: Edgar H. Schein: Iceberg ModelSource: Czuprák Ottó – Kovács Gábor (2013): Vezetés- és szervezéselmélet. Budapest, NKE. 311.

Visible characteristics: ceremonies, rituals, stories, legends, myth, jargon, language, symbols, clothing, appearance.

Visible characteristics in law enforcement organisations Ceremonies

These are the acts which are repeated constantly. These acts determine the values of the organisation and increase the feeling of togetherness. For example, taking the oath is a determinant event for the members of the organisation. These activities strengthen the community.

Rituals

Actions which are planned developed and which strengthen the cultural values. Certain rituals are strengthening cultural values. The rituals describe the habits which have been established in the organisation e.g.: raising hand during taking the oath, salutation.

Stories, myths

Acts based on real cases that reflect the required behaviour and can serve as a good example to the members of the organisation. These acts show the way in a complicated situation,

they belong to the profession and to the past of the organisation. Through the years, some person's actions, behaviour and stories will become a legend.

Language, jargon

The phrases, abbreviations used are unique, only the members of the organisation understand them.

Symbols, clothing, apperance

During the ceremonies the symbols have particular importance, a part of it reflects the place and role of the members in the organisation (ranks, honours). The organisational appearance is also determining (the appearance of the police cars).

These visible characteristics described above are important in the organisation because the members of the organisation observe these elements of organisational culture and identify themselves with those.

Invisible characteristics: assumptions, beliefs, prejudice and values in law enforcement organisations

Assumptions

The reason for the establishment of law enforcement agencies is the ambition for the creation of a complex security. The organisation's new strategical objectives, the planning of the future, the restructuring of the organisation rely on these assumptions. In these cases, the old assumptions are replaced by the new ones; the whole system or each part of it is changed.

The motivations of the new members – who join the police – have also these assumptions. E.g.: the organisation cares about its members, it gives them protection, clothing.

At an individual level, all these factors serve as a motivation to join the organisation.

Within law enforcement agencies, the police, with its slogan "We serve and we protect", demonstrate the provided service.

Beliefs

To the operation of the law enforcement organisation, beliefs have a special role. These are the opinions which are not supported by empirical facts. The main function of organisational belief is to accelerate the integration into the community.

Values

Values are the understanding of the groups and organisations about certain things, conditions, which they prefer against other things. The following characteristics are considered as basic values in the law enforcement: logical thinking, strength, self-control, courage, loyalty for the organisation.

THE CONTENT AND THE LAYERS OF THE POLICE ORGANISATIONAL STRUCTURE AND ITS DETERMINING FACTORS

Police organisations in Europe developed from the state's army. The existence of the army is the same age as the state. It is the tool of conquest and defense, whose organisational culture as a hierarchical organisation build obedience and order.

The defence administration's task is to react to the external threats and the task of the police administration is the protection of the existing values. The basis of the police organisational structure includes the organisational culture of the military organisation. The similarity between the two professions is that organisations do risk prevention, both use the legitimate physical violence, but the aim of the activity of the organisations is different. The aim of the military organisation is peacekeeping, if needed by the elimination of the enemies, while the aim of the law enforcement organisations is to reconstruct the infringed legal order.

Based on the theory of Mr. Géza Finszter, from the side of the law enforcement functions, we have to make a distinction between public safety tasks, police force tasks achived by the power of using troops, and between information gathering, and evidence collecting functions (Géza, 2013).

The public safety culture

Performing public safety maintenance tasks is guaranteed by the presence in public areas. The presence in the public safety areas ensures that threats to public policy and public security cannot turn into offensive state. The element of the presence can be the guardianship, which appears in public areas, but it can appear in private areas as well.

Basically, the public is law-abiding, and the public safety culture originates from this prejudice. The society expects the law enforcement cooperation in maintaining order. The professional values in public policy are: prediction and perception of danger and conflict situation in time, the adequate level of using legitimate force, solidarity, conflict resolution and supportive intervention. There is a distance with regard to power between the person and citizens, which makes a police officer active, because a police officer implements decisions in which he/she was participating in the decision making phase. Therefore, the officer matches with the work and performs it as a profession and experiences its moral values.

The organisational culture of the use of troops

The use of troops in police is very typical. In particular, it means the use of legitimate physical violence

According to Mr. Finszter Géza the use of violence can be analyzed through three approaches (Géza, 2013).

Firstly, the socially critical approach says that the police powers can be classified as deviant.

Secondly, the offenders are not afraid of police actions since their answer to these police actions is increasing aggression. A police officer can only start the situation if the measures can be finished safely.

Thirdly, it can be that police officers are controlled by prejudices.

Culture of reconnaissance, investigation and examination

Reconnaissance and investigation are one of the basic functions of law enforcement organisations. Its goal, among others, is to detect undiscovered violent acts that are still in preparatory stage. The law enforcement aspect is present in the collection and investigation of information, in the reconnaissance, and it allows the collection of data about suspected criminal offenses in a "covered" operational form.

The secretely obtained information has a great impact on the launch of preventive operations, which in many cases can only reach its goals through legitimate physical violence. Before the operation takes place, the suspected behaviors are analyzed from a legal perspective and the necessary approvals, defined in the criminal law, are requested from the prosecutor or the judge.

The other function of reconnaisance and investigation related to the culture is the execution of investigations that are required by the state to ensure the instituting of its criminal proceedings. Following this approach, the crime was committed in the past as previously assumed. The unlawful act has been committed; the infringed legal order can now be restored only through jurisdiction. The purpose of the investigation is to reconstruct acts that happened in the past in order to provide evidence in criminal procedures. This section is clearly defined in the criminal law and the role of the prosecutor is applied in the process. The aim of the criminal procedure is to collect sufficient evidence which is credible, related to the case and can be used in the court to determine criminal responsibility. Coercive measures that would restrict personal freedom are controlled by jurisdiction including its determination, execution and aims.

For a successful reconnaissance, deception of the area is needed. The accomplishment of such activity does not require a closed, hierarchial and centralized system. It is rather supported by a pyramid model where the power distance is higher and the need for security aversion is also more significant.

In the course of the investigation, a criminal proceeding based on reasonable grounds is started against the suspected person and the procedural law defines it as part of the investigation. Within the law enforcement organisation, these tasks are performed by a separate department, the investigation units. This separation confirms that different assumptions and values can be expected from the reconnaissance and the investigation.

The main purpose of the investigation is the acquisition of personal evidence and the procedure is characterised by the intellectual debate between the interrogator and the suspect. During the inspection, a defense lawyer acts on behalf of the suspect. Coercive measures restricting personal freedom can be applied if the course of the criminal proceeding is compromised. In such case, the examination is continued under the supervision of the prosecutor.

THE REQUIREMENTS TRANSMITTED BY THE POLICE AND ITS VALIDITY

As it has been written previously, the law enforcement organisations compose a strictly regulated, closed system. The interest of the members of the organisation is to fulfil and correspond to the requirements. These requirements increase continuously with the progress of the organisation. The requirements of the organisational structure are the following (Bakacsi, 1988).

The mission of the organisation

The development of the Hungarian police organisation followed the continental European developement path, which builds on the military organisational traditions and culture. The law enforcement organisations in Europe are striving for excellence, for this they use the modern technological developments. The leaders recognised that only well prepared personnel could achieve good results. The preparation of the personnel occurs on a high level.

Following legitimacy

The professional personnel in the law enfocement organisations follow the rules which are written in the Fundamental Law, in the acts and other regulations. The personnel must perform their duty by complying with the good governance, public good and the democratic society (Bakacsi, 1988).

Identification with the job description or with the organisation

The members of the organisation – most of them – see their profession as a life profession, which characteristics integrate into their personality. E.g.: the police officers who have a day off will interfere into the elimination of the threat.

The quality of work, responsibility

Every member has the responsibility to do their work on a high level. It is a basic expectation to continously develop the general knowledge, competences and skills of the personnel and perform their work with competency and profession.

The human orientation of the organisation

The law enforcement organisation is human oriented; it appreciates its members. The organisation provides fair, equal treatment and respects the personal rights. Moreover, it provides further opportunities for education and motivation of the members with long-term career path.

Dependency from the leaders - independent working

In the law enforcement organisation, a leadership system functions.

The goal and tool orientation of the law enforcement organisation

In the law enforcement organisation, the achievement of targets is very important, which is personalized in providing security. The aim of the law enforcement organisation is to equip their members with the most modern tools and equipment.

The relation of law enforcement organisations with the environment

The law enforcement organisations keep in touch with the society and with other law enforcement organisations.

The definition of activities within the law enforcement organisations

The law enforcement organisations are functioning according to a schedule. Every organisation has its strategical, tactical and operative plans, which ensurs the continuity of the tasks.

Every organisation plans for a long term. They analyse and make consequences about past events. Every organisation makes a risk analysis in order to be prepared to implement the tasks.

The strenghtening of the esprit de corps, cooperation with colleagues and with society

From the closed structure of the police organisations, the *esprit de corps* is a basic requirement. In the law enforcement organisations, the hiererchical system provides an organised link between colleagues and the maintenance of this relation.

The reliability and commitment towards the law enforcement organisation

The member of the professional personnel contributes to the good reputation of the organisation with his/her disciplined and ethical work, and he/she lives according to the adopted standards.

Focus on individuals and groups within the organisation

Due to the complexity of the tasks within the law enforcement organisations and the reduction of risk exposure, working together as a team is highly recommended. It is widely accepted within the organisations that its members subordinate their own personal interests for achieving organisational aims. In general, the collective goals are decisive, individual ambitions and interests are rare and unique phenomenon within the organisation.

Taking and avoiding risks

Taking risks on a different level appears almost in every law enforcement organisation's activity. The impacts of the risks can be reduced with perfect professional preparation, practice, high level cooperation and use of modern protective equipment.

Performance orientation

During work, the performance of each member of the organisation is being evaluated. Some years ago, the performance assessment system was initiated in the law enforcement organisations. The leader has the opportunity to deflect the person's salary in a positive or in a negative way.

Conflicts in the law enforcement organisation

Due to a strong hierarchical structure of the law enforcement organisations, the dependencies in most cases do not allow the personnel to criticize the leadership. The conflicts stay within the organisation. Law enforcement organisation creates a coherent establishment to the general public.

The requirements in relation to the communication with the citizens

The characteristics of the activities of the law enforcement personnel are the respect of the requirements of legality and professionality. The law enforcement staff does not abuse its powers. They refrain from binding to the political parties. Additionally, the personnel cannot be the member of a political party.

The requirements in relation with the appearance, private life and behaviour

The expectation in relation with the appearance is to be organised and wearing the uniform must be in accordance with the requirements.

The opinion and the limitation of appearance on the Internet (Czuprák, Kovács, 2013)

No member of the law enforcement organization can ctiticize the received order, unless it is otherwise defined by the law. No member of the law enforcement organisation as an individual can disclose any professional information on the Internet.

Based on the above described main characteristics, it can be seen that the organisational culture of the law enforcement organisations is very complex.

Customer service approach

During the communication process, the parties have an effect on each other whether with or without intentions. This is more than verbal expressions; people can influence each other also through metacommunication. The following qualities can be important in the relationship between police officers and citizens: reliability and firmness, conflict management, empathy, politeness and natural behaviour, active listening, self control, self-knowledge and self-confidence, stress tolerance and management, persuasive communication, credibility and professionalism.

The product of the police service is security. During the work, a police officer must preform this security service that has to be in the organization's interests. The police officers also pay attention to this.

The police press service is the main element of the communication network. It is responsible for the different events and the publication of the up-to-date news and information. This activity forms build the image of the police and police officers. In the frame of the social discussions, the police always become a part of social representation. These surveys give basic information about the police organizations and the organizational culture. The organization itself and thereby affects the organisational culture which has an effect on the members of the organization. The members of the police organizations and their satisfaction with their jobs have an effect on the society and the citizens. Managing the relationship with citizens is a critical point of the police organization. Citizens considered in this case have view of the several aspects of the organization. During the interaction process, between a police officer and a citizen, mutual respect and appreciation are crucial. However, based on their situations, customers (the citizens) may give specific reactions. The aim of the organization is to make the "customer" satisfied. The police officers must describe the relating phenomena, as well as the organization must handle the situation.

In the course of police education process adequate courses of the different police situations must be organized; special education is required to demonstrate the above qualities. In our views, those who apply this profession must be effective, must pursue the crimnial commitments in their work. To achieve these goals, they need higher effectiveness and presumably receive more positive feedback considering several aspects and thereby making it easier for the customer to handle the situation.

The negative emotions and fears might be very difficult; this is not a key of their effectiveness. The positive emotions are a good example when the citizen will be satisfied and the encounter with the police offices becomes a positive memory for them. This will be the experience that they will share with their environment. The more positive experiences shared in the society, the more positive observations will be included in the social representation. Thus,

the image about the police organizations will change and it will be better. A positive picture and the efficiency of the organization, the culture of the organization is good for everybody, good for the state security, good for citizens, good for the members of the police organization.

The responsibility of the police leaders is vital, the work of these leaders charaterises the picture of the police organizations.

CONCLUSION

1. Culture, and especially organisational culture, is a complex phenomenon with a very wide academic literature. The European law enforcement organisations were formed from the military.

2. The organisational culture and the organisational culture of the law enforcement personalise the togetherness in the organisation, which consists of visible and invisible elements.

3. In the law enforcement organisations, the organisational culture is structured according to the professional characteristics; they can be separated by their characteristics.

4. The requirements which are conveyed by the law enforcement organisations have an effect on the organisational culture, which appears in the aspect of the evaluation of the organisation.

As a final thought, we can say, that the organisational and national culture are closely linked to each other. This concept is to prove this thought. In an ideal state a police officer is English, a chef is French, a repairman is German, a lover is Italian and the Swiss organise everything. It could be a nightmare if a police officer is German, a chef is English, a repairman is French, a lover is Swiss and an Italian organises everything.

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THE POSSIBILITIES AND LIMITATIONS OF INDIVIDUAL RISK ASSESSMENT OF DOMESTIC VIOLENCE BY APPLICATION OF THE MATRICES OF PROBABILITY AND CONSEQUENCES

Dane Subošić[1]
Obrad Stevanović
The Academy of Criminalistic and Police Studies, Belgrade

Slaviša Đukanović
Dejan Milenković
Ministry of Internal Affairs of the Republic of Serbia, Belgrade

Abstract: By comparing the risk theory and the relevant standard with the Law on Prevention of Domestic Violence (Law), it comes to the conclusion that risk management, especially in the domain of its assessment, is based on qualitative methods of analysis. Thus, the potential for the application of semi-quantitative and quantitative risk analysis methods in the application of the said regulation is not used. As it is too ambitious to problematize the purpose and the possibility of implementation of both types of methods of risk analysis in the Law by one paper, this paper deals with possibility and limitations of the conversion of qualitative into quantitative data in the function of risk assessment in the doctrine and practice of preventing domestic violence in the Republic of Serbia. More precisely, the work has identified the purpose, possibilities, limitations and the proposal of their overcoming, in the implication of the matrices of probability and consequences, as a semi-quantitative method of analysing the specific risk in the doctrine and practice of preventing domestic violence in the mentioned spatial framework. This contributes to the creation of conditions that support the effective implementation of the Law, which are not foreseen as a potential for improving the doctrine and practice of preventing domestic violence by using matrices of probability and consequences, while recognizing the identified limitations. The verification of this research creates a starting point for the development of standards for the quantification of the risk of domestic violence, which creates the conditions for

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e-mail: subosicdane@yahoo.com

the mentioned assessments to be more accurate in terms of precision, ranking and risk classification, as well as the reduction of discretionary decision-making. This would create the conditions for defining good practice in this area, which could be taken to the necessary extent in other countries.

Keywords: *assessment, risk, domestic violence, matrices of probability and consequences, limitations, Standard.*

INTRODUCTION

Key elements of risk management theory and relevant risk management standard, to a significant extent but not completely, explicitly or implicitly are implemented in the *Law on prevention of domestic violence* ("Official Gazette of RS", No. 94/2016; Subošić, Stevanović, 2018). This primarily refers to the application of qualitative - not semi-quantitative and quantitative (Savic, Stankovic, 2012: 276) risk analysis of the reported hazards of domestic violence. However, qualitative risk analysis is very generalized and simplified, so it only implies the determination of existence (the risk is greater than zero) or non-existence (the risk is zero) of immediate danger of domestic violence, that is, the presence or absence of legally determined risk factors for that violence in a reported case, which is appropriate for the work of police officers. In addition, the Law does not stipulate the risk of domestic violence by intensity, depending on the type of violence (the danger is the same for all types of violence, in addition to the risk being greater than zero). Finally, the Law does not indicate the presence of semi-quantitative and quantitative methods of risk analysis, which would result in estimates based on numerical values, both individually (appropriate for the work of police officers) and general risk of domestic violence - appropriate for the work of managers (Subošić, Stevanović, 2018).

The absence of the quantification of the risk of domestic violence in the Law makes it impossible to: 1) classify risks to acceptable and unnaceptable, and 2) prioritize risk treatment. The absence of quantification of the risk of domestic violence makes it impossible to determine the threshold of the risk of that violence, as the limit values classify them into acceptable and unacceptable, and therefore the risks that require or do not require appropriate treatment. On the other hand, the absence of the quantification of the risk of domestic violence makes it impossible to prioritize the treatment of (non-)acceptable risks. Depending on the hypothetical manner that the unregulated areas are regulated analogously to the areas that are regulated, it can be considered that the *Security and resilience of society-risk assessment, which is covered by the same standard* (Standard), is an analogous area of assessment of the risk of dometic violence (*Standard SRPS A.L2.003:2017*: *Security and Resilience of Society-Risk Assessment*). This standard envisages risk assessment using a semi-quantitative method for analyizing probability matrices and consequences. This paper presents an attempt to assess the risk of reported case of domestic violence using the Standard, and therefore the *probability and consequence matrix method*, taking into account the identified constraints, with the intent of mitigating or overcoming the weaknesses in the application of qualitative risk assesment methods provided by the Law. In this regard, the work can be useful for improving the work of competent authorities in the area of preventing domestic violence (police, public prosecutors, courts and misdemeanor courts) and other institutions (social work centers and other). This particulary refers to the assessment (identification, analysis and evaluation) of the specific and general risk of domestic violence for the purpose of their treatment. The Assessment, therefore, and the treatment of risks should be continuous, because the risk is a dynamic phenomenon (Douglas, Skeem, 2005: 347–383).

IDENTIFICATION OF DOMESTIC VIOLENCE RISK BY APPLYING THE MATRIX OF PROBABILITY AND CONSEQUENCES

Identifying the risk of domestic violence is the process of identifying the dangers of all types that can endanger the safety and integrity of family members, which also includes recognizing the conditions (*hazards*) that are suitable for the dangers (specific types of violence), resulting in the occurrence of a risky event (acts of domestic violence). This means that, in principle, certain dangers (for example, from physical injuries) favour certain conditions (eg, non-working day), during which the victim is more exposed to violence in relation to a working day, since it is to be expected that the victim and the abuser spend more time together in the same place on a non-working day, as is not the case on a working day (if they live in the same household).

The existence of an imminent threat of domestic violence in each reported case is determined by the identification of some of the special risk factors that are prescribed by the Law as follows: "Earlier violence in the family and the willingness of a possible perpetrator to repeat this violence; etc." (*Law on prevention of domestic violence*: 16). Some of the risk factors are prescribed in the *Special protocol on the treatment of police officers in cases of violence against woman in family and in partnership relationships* (https://www.sigurnakuca.net/upload/documents/PlaviTekst.pdf: 11-12, accessed 20. 01. 2018). This means that the factual situation which is related to the specific case of domestic violence is compared by the police officer with the stated risk factors in the function of his assessment (*Law on prevention of domestic violence*: 15), which is qualitative (based on words), both generalized and simplified, because it does not contain quantification, which is disabled: 1) comparing the size of the risk with its threshold (limit value) and 2) risk prioritization. In order to avoid these weaknesses in the qualitative analysis, it would be desirable if the competent police officer is able to compare the factual situation (data from the criminal charge and other), relating to the specific case of domestic violence, with the equivalent of domestic violence and requirements and evaluation criteria for assessing the risk of unlawful activity in the Standard (*Standard SRPS A.L2.003:2017: Security and Resilience of Society-Risk Assessment*), which refers to "violent crime and serious violations against public order and peace" (*Standard:* 34, 40). For example, the reporting of domestic violence (within the meaning of the Law), which can also be qualified as a criminal offense "Non-maintenance", from the Article 195 of the *Criminal Code*, may contain the following:[216] "By the final and enforceable judgment of the first basic court in Belgrade, the marriage between Petar Petrović and the applicant Marija Petrović was divorced, and the joint children, the minor Marko and Jovan Petrović, were assigned to mother Marija Petrović for custody. With the same verdict, Petar Petrović is obliged, in the name of contribution for the maintenance of children, to pay to the current account of Marija Petrović, an amount of 10.000,00 dinars for each child, every month. As Petar does not pay the money for the contribution of child support for 10 months, Marija reported his behaviour to the local police station as a domestic violence (https://www.besplatnapravnapomoc.rs/primer-krivicne-prijave. accessed 17. 02. 2017.)."[317]

The identification of risk of domestic violence in this case using the relevant Standard would involve comparing the data from the application and other relevant data for the reported case of violence, with a *criteria for identifying the risk of unlawful action* (*Standard:*

2 In addition to using the procedure for assessing the risk of domestic violence, the same data would, in the specific case, be used to file a criminal complaint with the competent public prosecutor's office, due to the commission of the alleged criminal offense.

3 This example, although common, is not a typical example of domestic violence. In this regard, there are many more typical cases of domestic violence that result in deaths, injuries and other injuries which are accompanied by psychological and other types of violence.

Attachment DJ, Table DJ.1) that corresponds to police prevention of domestic violence. The criteria include:

1. Existence of a system of physical and technical protection of persons,[419] including the existence of appropriate licenses,[520] and fulfilling other legal requirements.

2. Undertaking regular and prescribed protection measures to clients,[621] in relation to threats from the execution of violent delicts, and

3. Employees are trained to timely identify threats from the commission of criminal offenses and properly react[722] to mitigate or prevent the consequences,[823] with the existence of systemic and continuous employee training,[924] existence of response plans by groups of delicts,[1025] and the making of regular analysis of the state of security and the risk of unlawful action (*Standard:* Attachment DJ (normative), Criteria for identifying the risk of unlawful activity, Table DJ.1 – Criteria for identifying the risk of unlawful activity).

Comparing this factual situation with the requirements and criteria for assessing the risk of unlawful activity in the Standard, the size of the danger is "MINIMAL=1" (*Standard:* Attachment DJ (normative), Criteria for identifying the risk of unlawful activity, Table DJ.1 – Criteria for identifying the risk of unlawful activity). In this regard, it is necessary to record the identified risks and the size of the hazard. It is done with a *form for the record of identified risks and the extent of danger* (*Standard: Attachment LJ (Normative), Form for recording the identified risks and the extent of danger, Table LJ.1 – Form for recording the identified risks and the extent of danger*). By it, the possibility of violent crime and serious violations against public order and peace (about domestic violence in the context of public order and peace see more in: Marković, 2015: 211-231) is described by facts (e.g. criminal charges and other data) and quantifies descriptively and numerically, as already stated.

Based on the previous analysis, primarily due to inadequate terminology, it is concluded that the existing Standard cannot be applied consistently in identifying the risk of domestic violence, which is why there is a need to develop a specific standard for identifying the risk of domestic violence in a specific case, which in some countries is the case. An example for that is a widespread standard *Domestic Violence Risk Identification Matrix* (DVRIM), known also as *Barnardo's*, which is intended to protect children as victims of male-female domestic violence and contains four levels of risk, from 1 (moderate), through 2 (moderate to serious) and 3 (serious), to 4 (hard). To the indicated intensity of domestic violence, this standard comes to the so-called "Check list", through which quality is transferred to quantity, which makes it a semi-quantitative method of risk assessment (https://www.reducingtherisk.org.uk/cms/sites/reducingtherisk/files/folders/resources/risk_and_safety/Child_risk_ indicator_matrix_and_next_steps_june_2010_A3.pdf. accessed 11.3.2018). What you gain by this is, in family violence, a conversion of quality into quantity, because the descriptive risk factors (the factual situation as per Article 16 of the Law) receive the size of the danger, which in the demonstrated case is ("MINIMAL=1"). Therefore, in order to mitigate the listed weaknesses in qualitative risk identification in the specific case of domestic violence, the conditions are created for making the assessment more valid, which creates the conditions for risk analysis using the semi-quantitative method of *matrices of probability and consequences.*

4 Police objectively represents a system of physically-technically protected values.
5 After successful specialized trainings.
6 Citizens, as users of services provided by the police and other entities to prevent domestic violence.
7 Police officers, especially competent in the sense of the law.
8 Emergency measures within the meaning of the law.
9 Specialized and other training in the meaning of the law.
10 Violence in the family as a criminal offense, offense and risk (danger).

ANALYSIS OF THE RISK OF DOMESTIC VIOLENCE USING THE MATRIX OF PROBABILITY AND CONSEQUENCES

The matrices of probability and consequences are the method prescribed by the risk assessment standard. This standard is intended for numerous users, including public authorities, and including the police (*Standard*: 6). In terms of the Standard, the risk matrix (probability and consequence) is a tool for ranking and showing risk, defining the scope for (1) probability and (2) consequences of events. In addition to that, *probability* (P) is a combination of *exposure* (E) and *vulnerability* (V) of the protected value in relation to the identified risk and is determined according to the following:

$$P = E \# V$$

Exposure (E) represents a degree to which a victim of domestic violence is susceptible to the influence of the event. If there are event logs, in addition to exposure, the organization will take into consideration the frequency of it as well. In this regard, the *frequency* (F) refers to the repetition of events over a certain period of time and is an integral part of the exposure. Frequency estimation is carried out on the basis of data on the existence of valid data records.

The determination of exposure (E) and frequency (F) of domestic violence is possible by using data related to the cooperation of competent authorities and institutions in preventing domestic violence in criminal proceedings for numerous crimes (*Law on the prevention of domestic violence*: 4). Therefore, the application of the matrix of probability and consequences method is demonstrated by the application of data relating to the "Non-serving" offense referred to in Article 195 of the *Criminal Code*, for which the victim was, for example, exposed for ten months to ten harmful events, before deciding to file a criminal complaint. The data from the previous case should be compared with the *Exposure Criteria* (E) (*Standard:* Attachment N (normative), given in the following table, in order to determine the degree and extent of the victim's exposure to the mentioned criminal offense. In this regard, the following table is stated.

Table 1: Table N.2 – Exposure Criteria

Exposure (E)		**Description of exposure and/or frequency** (at least for the last three calendar years)
Degree of exposure	Size of Exposure	
1	Negligible	Daily, exposure of threats of one to two days and/or one or no harmful events
2	Occasional	Weekly, exposure to threats of three to seven days and/or two to five harmful events
3	Long	Monthly, exposure to threats of one to twelve months and/or six to ten harmful events
4	Predominantly	Annually, exposure to threats of one to three years and/or eleven to fifteen harmful events
5	Permanent	Perennially, exposure to threats for many years and/or over fifteen harmful events

By providing the data from the previous example in the context of the *Criteria for determining exposure* (E)[1134] from Table 1, it is concluded that the victim's exposure to the criminal

11 And/or frequency.

offense is such that the degree is "3", and that the size is "long". By comparing the data from the previous example with the *Exposure criteria* (E), it can be concluded that this "factual state" corresponds to and is suitable for this part of the Standard, and with it, the exposure in the function of risk quantification can be determined.

Vulnerability (V) represents the existing state of protection, that is, the sensitivity of the protected value to the identified risks. In this regard, on November 23, 2016, the National Assembly of the Republic of Serbia adopted the *Law on the prevention of domestic violence*. According to this Law, the prevention of this kind of violence implies: 1) a set of measures that reveal the existence of an immediate threat of violence in the family[1235] and 2) a set of measures which are applied when that immediate danger is discovered (*Law on the prevention of domestic violence*: 17). Although the suspect and the victim are divorced and do not live in the same household, having in mind that filing a criminal complaint may cause the suspect to cause a revolt against her applicant, there is a basis that with the risk assessment, it can be established that there is *an imminent threat from that violence*. In addition to the police, other state bodies (police, public prosecution, court, centre for social work, and other institutions) have jurisdiction in the prevention of domestic violence.

The stated facts (there is an imminent threat of violence, the protection has the characteristics of completeness: the focus on the suspect and the victim, the preventive/repercussion treatment, the multi-sector cooperation) should be compared with the criteria for determining the vulnerability from the following table in order to determine the degree and extent of vulnerability when it comes to the specific case of domestic violence. More precisely, multi-sector cooperation in the context of the *Community Policing* Concept is a valid framework for combating domestic violence, but the police culture creates a negotiating rather than a cooperative working (organizational) environment (Giacomazzi, Smithey, 2001: 99–122). Complex conflicts require co-operation in problem-oriented work (Straus, 1993: 29).

Table 2: *Table N.3 - Vulnerability assessment criteria (Standard: Attachment N, Table N.3.)*

Vulnerability		Description of vulnerability
Degree of vulnerability	Size of vulnerability	
1	Very big	Protection measures are not applied or do not exist
2	Big	Isolated protection measures are applied (only physical protection, only technical protection)
3	Medium	Physical and technical protection is applied, but not normative-organizational procedural measures of protection
4	Small	Multiple protection measures are applied, without risk assessment
5	Very small	A complete, optimally designed protection exists, according to the risk assessment

Comparing the above paragraph with the criteria for determining the vulnerability from the previous table, a description of the vulnerability that corresponds to the level "5" and the vulnerability "very small" is presented. Determining the value of exposure/frequency of violence in the family "3" and vulnerability "5", the conditions for determining the likelihood of domestic violence has been created. However, although this table seems undoubtful, only

12 Possible perpetrator of domestic violence may be pronounced by a competent police officer - when in the risk assessment procedure he establishes that there are immediate dangers of that violence.

the formally prescribed measures for the protection of the victim appear in it as a criterion of vulnerability, and not the actual state of implementation of these measures. In reality, irrespective of the prescribed measures, the vulnerable situations of the victim can be very different. This leads to the conclusion that the existing Standard cannot be applied consistently in determining the vulnerability of the victim, which is why there is a need to develop a specific standard for determining the size of the risk of domestic violence in a specific case, which, as already stated in the section which is dedicated to risk identification - *Domestic Violence Risk Identification Matrix* (DVRIM), is known also as Barnardo's (https://www.reducingtherisk.org.uk/cms/sites/ reducingtherisk/files/folders/resources/risk_and_safety/Child_risk_indicator_matrix_and_next_steps_june_2010_A3.pdf, 11.3.2018). Taking into account the stated limitation of the application of the Standard and the manner of its mitigation or resolution, *the Matrix for determining the probability* (the following table) is stated.

Table 3: Table N.4 - Matrix for determining probability

Vulnerability (V)		Very big	Big	Medium	Small	Very small
Exposure (E)		1	2	3	4	**5**
Negligible	1	3	2	1	1	**1**
Occasional	2	4	3	2	2	**1**
Long	3	5	4	3	2	2
Superior	4	5	4	3	3	3
Permanent	5	5	5	4	3	**3**

The carried out analysis determined the probability of the risk of domestic violence in the analysed case with the size "2" Describing the probability of the size "2", the *Criteria for determining the probability* (P) (*Standard:* Attachment N, Table N.1) there comes the conclusion that it is "incredible", in other words that it is *Probability above 1%: it did not happen, but it could happen or could happen "in some cases in ten years"*. Theoretical research confirms the frequency of reporting domestic violence of 1%. The survey estimated that 1% of women aged 18-62 at Rhode Island (USA) reported during the calendar year at least one case of domestic violence (Pearlman, et al., 2003: 51). We came to this value of risk through exposure and vulnerability, with their identified weaknesses (Standard), it can be concluded that the determined value of the probability of domestic violence, as a consequence, has the same weaknesses. The way to overcome them is to develop a specific standard for assessing the risk of domestic violence.

Consequences (C) represent the effect of a harmful event on the protected values, and are manifested through the size of the loss (damage) in relation to the critical value of the protected value. Consequences are determined according to the following expression:

$$C = D \# Cr$$

Damage (D) is a measure of damage of protected values. Domestic violence is a very dangerous phenomenon, bearing in mind that its average in the Republic of Serbia in the period 2011-2015 included 53.8 people per year (*Strategic assessment of public safety*: public version 2017: 36) who died, which means that the victims of domestic violence may be deprived of life. Such consequences are the equivalent of the most serious damages. On the other hand, financially, if the monthly damage from a criminal offense of 20,000.00 dinars is observed, in the circumstances in which the victim has a monthly income of 60,000.00 dinars, it comes to the conclusion that she was damaged in the amount of 1/3, or 33.33% of revenues. In this re-

gard, this information should be compared with the *Damage Criteria* (D), which is indicated in the following table.

Table 4: *Table No.1 - Criteria for determining damages (D) (Standard: Attachment NJ, Table NJ.1.)*

Damage (D)		Description of damage
Degree of damage	Size of damage	
1	Very small	≤ 5 % of realized job incomes from the last published sheet of success
2	Small	> 5 % ≤ 10 % of realized job incomes from the last published sheet of success
3	Medium	> 10 % ≤ 15 % of realized job incomes from the last published sheet of success
4	Big	> 15 % ≤ 20 % of realized job incomes from the last published sheet of success
5	Very big	> 20 % of realized job incomes from the last published sheet of success

Comparing the reported data on the consequences of family violence with the criteria for determining the damage from the previous table, we come to the description of damage corresponding to the most serious degree "5" and the size of the vulnerability "very large". Such (monetary) quantification of damages is possible in cases of economic family violence, although the criterion does not contain quite an adequate terminology for what is the reason for the development of a dedicated standard. In cases of other (non-economic) types of domestic violence and their combinations, the monetary quantification of damages is significantly impeded, which can be alleviated by consulting the case law. However, what is more important than that is a proper understanding of the pecuniary damage, which should be understood as an *indicator* of possible consequences, and not as a consequence itself, because it can be psychic and ultimately deadly for the victim. Because of that, the *criteria for determining damage* (D) should be considered in the function of *matrices for determining consequences* (C) – Table 6, because the Standard contains the description for defined quantified consequences, which also contains the monetary amount of the equivalent non-monetary effect on the protected value (*Standard:* Appendix NJ, Table NJ.4).

Criticality (Cr) is a measure of the value, that is, of the protected value, i.e. its sensitivity to the effects of the harmful event. The importance of the victim's protected value in the form of the existence of two underage children, that is, its sensitivity to the effects of a harmful event that lasts 10 months apparently without the intention of the suspect to eliminate or mitigate it, in the volume of 33.33% of the monthly income of the victim, as well as the filing of a criminal complaint, indicate that the victim was severely damaged by the crime. The above stated fact should be compared with the criterion for *determining the criticality* (K), which is shown in the following table.

Table 5: *Table Nj. 2 - Criteria for determining criticality (Cr) (Standard:* Attachment NJ, Table NJ.2.*)*

Criticality (Cr)		Description of criticality
Degree of criticality	Size of criticality	
1	Very big	The threat to the protected values, resulting in a complete interruption of functioning.
2	Big	The threat to the protected values, resulting to a serious disruption of functioning.
3	Medium	The threat to the protected values … which allows functionality with increased efforts and additional resources.
4	Small	The threat to the protected values … due to which disruptions are possible in the process of work.
5	Minimal	The threat of the protected values … due to which there are problems in functioning that are solved in action, with regular activities and resources.

Comparing the reported data on the consequences of family violence with the criterion for determining the criticality in the previous table, we have a criticality description corresponding to the lowest degree "2" and the criticality size "large". It is obvious that Standard is terminologically not adequate to the needs of assessing the risk of domestic violence, therefore there is a need to develop a standard that is intended for that assessment. In addition, as in the case of damage, criticality criteria (*Criteria for determining the criticality* (Cr)) are also crucial to be considered in the context of the *Matrix for determining the consequences* (P) - Table 6.

Table 6: *Table NJ.3 - Matrix for consequences (C) (Standard:* Attachment NJ, Table NJ.3*)*

Criticality (Cr)		Very big	Big	Medium	Small	Minimal
Damage (D)		1	**2**	3	4	**5**
Very small	1	3	**2**	1	1	1
Small	2	4	**3**	2	2	1
Medium	3	5	**4**	3	2	2
Big	4	5	**4**	3	3	3
Very big	**5**	**5**	**5**	4	**3**	**3**

The carried out analysis determined the consequence of the risk of domestic violence in the particular case with value "5". According to the *Criteria for description of consequences (*C) (*Standard:* Attachment NJ, Table NJ.4), the consequences of risks that are quantified by size "5" are considered "catastrophic". Determining the probability (incredible = 2) and the consequences (catastrophic = 5) of the risky event, the conditions for determining the level of risk of domestic violence in a specific (reported) case have been created, which is determined according to the following expression:

RL=P # C

Therefore, the level of risk is a product of the degree of probability and degree of consequences (Appendix O, Table O.2).

Table 7: *Table O.2 - Matrix for determining the level of risk (Standard:* Attachment O, Table O.2*)*

Consequences		Minimal	Small	Moderate	Serious	Catastrophic
Probability		1	2	3	4	**5**
Impossible	1	1	2	3	4	**5**
Incredible	2	2	4	6	8	10
Probable	**3**	3	6	9	12	**15**
Almost certain	4	4	8	12	16	20
For sure	5	5	10	15	20	**25**

From the previous table, it is obvious that the combination of probability determined by "incredible = 2" and "catastrophic = 5" implies the level of risk of domestic violence in a particular case expressed in size "10". The established level of risk should be ranked according to the degree and size in accordance with the *Criteria for determining the level of risk* (*Standard:* Attachment P, Table P.1), see the following table.

EVALUATING THE RISK OF DOMESTIC VIOLENCE USING SEMI-QUANTITATIVE METHODS AND RISK TREATMENT

Unforeseen by Law, but recommended methods of semi-quantitative analysis from the Standard, such as *matrices of probability and consequences*, include the obligation to classify risks into categories, and then determine which risks are acceptable and which are not.

Table 9: *Table P.1 - Criteria for determining the risk category (Standard:* Attachment P, Table P.1*)*

Category		Size of risk	Level of risk
5	Fifth	Very small, negligible	1 and 2
4	Fourth	Small	3, 4 and 5
3	Third	Moderately big	6, 8 and 9
2	Second	Big risk	10, 12, 15 and 16
1	First	Extremely big	20 and 25

As seen in the previous table, the category of risk of domestic violence in a particular case, which is determined according to the *Criteria for determining the risk category*, is classified into a size that is expressed as "Big", while the risk level is "10". This still does not show if the risk is acceptable or unacceptable.

Table 10: *Table P.2 - Criteria for determining acceptability of risk (Standard:* Attachment P, Table P.2*)*

Risk acceptability	Level of Risk
ACCEPTABLE	1, 2, 3, 4 and 5
UNACCEPTABLE	6, 8, 9, 10, 12, 15, 16, 20 and 25

The previous table found out that the risk of violence to the family in the particular case by size "large" and level "10" is classified as unacceptable. This has been established in relation to the risk threshold, which is provided by the Standard at "5", as the maximum acceptable. The threshold or limit value of risk may serve risk treatment in such a way that there are no urgent measures for acceptable values, whereas for unacceptable risks there are measures. Otherwise (without quantification and risk thresholds), it is possible that, after the application of urgent measures in lower-risk cases, they may become at higher level risks (for example, use of an emergency measure may result in an increase in the aggression of the suspect of family violence).

The goal of assessing the risk of domestic violence is its prevention rather than prediction (Hart, 1998: 121–137). This requires risk treatment, as a process of adopting and implementing decisions on measures that influence the mitigation of unacceptable risks. In theory, there are four basic risk management strategies: 1) reduction, 2) transfer (transmission), 3) avoidance, and 4) risk control (Savić, Stanković, 2012: 278). The pronouncement and consistent implementation of these strategies, as well as the appropriate supervision over their implementation, substantially reduces the likelihood of the occurrence of a risky event, that is, the victim's exposure to a possible perpetrator, and hence its vulnerability. At the same time, these measures are expected to have a positive effect on deterring the perpetrator from intent, or on reducing his motivation to repeat the violence or use it for the first time. Finally, an unacceptable risk in the analysed case should be treated before a lower, and after a higher level risk.

CONCLUSION

This work has confirmed that there is a need and a possibility to overcome the incompletion and imprecision of qualitative risk analysis prescribed by Law in the function of assessing the risk of domestic violence. The incompleteness and imprecision are manifested in the presence of qualitative and the lack of quantitative risk indicators, as well as in the absence of risk ranking by level, especially acceptable and unacceptable. This means that the Law has not used theoretical and practical possibility of conversion of qualitative into quantitative indicators, which can be done using semi-quantitative methods of analysis, in particular a matrix of probability and consequences.

In spite of all the above, the preliminary analysis found that the Standard does not meet the needs of assessing the risk of domestic violence. Although the scope of its implementation "... in the field of security and resilience of the society ..." and it is intended (among other users) for the "public authorities", the conclusion is reached, primarily due to inappropriate terminology (except in the case of *exposure* as criteria for determining the probability). Regarding the *vulnerability* criterion, only the formally prescribed measures for the protection of the victim appear in the analysed Standard, and not the actual state of implementation of these measures. Assessing the damage by applying the Standard, its monetary quantification is possible in cases of economic family violence. In cases of complete or prevalent non-eco-

nomic family violence and their combinations, the monetary quantification of the damage is significantly impeded, with the possible use of the court practice of financial expression of non-material damages. In doing so, understanding of pecuniary damage is crucial, which should be understood as an indicator of possible consequences, and not as a consequence, since it can vary from psychic, through health ones, to the death of the victim. Therefore, not only *harmfulness*, but also *criticality*, as criteria for *assessing certain aspects of the consequences* of risks should be considered in the context of the criteria for determining the consequences, which contains a *monetary* amount of *equivalent non-monetary consequences* for protected values, that is, the consequences for their functionality. All this leads to the conclusion that there is a need to develop a specific standard for determining the size of the risk of domestic violence in a specific case, which has been done in some countries. Such standards may be based on semi-quantitative risk assessment methods, such as the method of risk matrices.

The practical application of this conclusion refers to the improvement of the work of competent bodies in the area of prevention of domestic violence and relevant institutions. This can be achieved by developing and applying standards to assess the specific and general risk of domestic violence. What is obtained is: 1) the immediate application of standards in relation to the factual set of the reported case of domestic violence, which would lead to risk quantification, 2) deciding of risk treatment, which would predominantly occur on the basis of quantitative sizes and less based on impressions but based on qualitative analysis, which would reduce the possibility of discretionary decision-making, and 3) the creation of quantitative bases for assessing the general risk of domestic violence in the area for which the organizational unit of the police is responsible, which would also become the obligation of its manager, which is not envisaged by the Law.

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THE ANALYSIS OF THE QUALIFICATION LEVEL OF MEMBERS OF POLICE INTERVENTION PATROLS FOR APPLICATION OF MEANS OF COERCION[1]

Bojan Janković, LLD[2]
Goran Vučković, PhD
Saša Milojević, PhD
Boban Milojković, PhD
University of Criminal Investigation and Police Studies, Belgrade

Bojan Mitrović, PhD
Ministry of Interior of the Republic of Serbia

Abstract: Due to intensity of stress in police officers and the frequency of its appearance, policing is classified among the most stressful jobs. The most extreme kinds of stress in police officers are connected with the use of means of coercion because these are situations in which breach or limitation of human rights or liberties may appear, or there may be injuries and fatal consequences. Because of the listed specificities of policing, a survey was conducted on the sample of 32 members of intervention patrols of the Ministry of Interior of the Republic of Serbia (MOI of the RS), because members of the police intervention patrols often operate in high-risk situations, in which there is stronger probability that means of coercion would be used, than in interventions by police officers in other jobs and assignments. The aim of the study was to determine how often and in which way the police officers use means of coercion, to which extent they are trained to use them and how much attention is paid to such type of training. The results of the study point that all respondents have used means of coercion at least once during their careers. However, disturbing results are related to situations in which almost the third of the respondents have not used the means of coercion although all legal conditions for their application have been fulfilled. Also, the results imply that insufficient attention is paid to education of police officers related to the use of means of coercion. All things listed above imply that the approach to this problem should be changed, that is, the training of a police officer should be more intense, so that it would be continuous and applied during the whole career.

Key words: analysis, police intervention patrols, means of coercion, high-risk situations

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2 **Corresponding author:** bojan.jankovic@kpa.edu.rs

INTRODUCTION

Because of intensity of stress in police officers and the frequency of its appearance, policing is classified in the group of the most stressful jobs. The most extreme kinds of stress in police officers are related to the use of the means of coercion (Hickman, Fricas, Strom, & Pope, 2011). No other civil servant is imbued with the powers of coercion that we afford police officers (Atherley & Hickman, 2014). In such situations, exceeding or misuse of the means of coercion as one of police powers may appear (Kesić, 2016) stipulated by the Law on police (2016), which can lead to breach or limitation of human rights and liberties, injuries and fatal lethal consequences. Thus, for example, in the period from 2003–2013 the police officers of the MOI of the RS used the means of coercion illegally in 76 cases, which is 0.21 % of the total number of recorded uses of this power (Kesić, 2016). At the same time, of all available means of coercion, the police officers most often used physical strenghth illegally, in 41 cases or 53.9 %, while, for example, there were only 2 cases of illegal use of firearms in the same period.

The right of the police to use means of coercion stipulated by the law has brought the expectancy that the police respect the basic human rights during the use of the means of coercion (Noppe & Verhage, 2017). However, in practice the police officers can find themselves in unexpected situations in which they have to decide in a fragment of a second how to react and whether to use means of coercion. And when they are in such situations, there is no dilemma whether, but how to use those (Noppe & Verhage, 2017).

All the listed problems that may occur during the use of the means of coercion can be overcome only if the police officers possess a certain level of knowledge and skills from this field. To achieve a certain level of knowledge and skills, the process of education should be completed. Here we talk about a special type of education, about special knowledge and skills necessary for policing that cannot be obtained in general education institutions, but in specialized institutions for police education and in the Ministry of Interior itself (Janković & Milojević, 2016). Such type of education can be classified into two categories: education conducted before admission into police units (the Academy of Criminalistic and Police Studies, the Basic Police Training Centre) (Milojević, Janković, & Cvetković, 2015) and education after being employed in the police units, conducted via different specialized courses and trainings (Macvean & Cox, 2012).

In recent years police use of the means of coercion has become a popular topic in newspapers and blogs, in classrooms, and elsewhere (Atherley & Hickman, 2014). Here we have to mention that the use of the means of coercion is not as frequent as widely thought by the public (Hickman, Atherley, Lowery, & Alpert, 2015). Use of the means of coercion is a statistically rare event; when it happens, levels of force are relatively low (Alpert & Dunham, 2004). According to one study (Taylor & Woods, 2010), in all contacts with citizens, the police used the means of coercion in only 1.75% of situations, and in 20% of cases of arrest. In another study (Hickman et al., 2015) it is stated that out of the total number of calls directed to the police, only 0.4% are related to situations in which the means of coercion are used. In addition to being rare, a small number of officers use the means of coercion disproportionately (Worden & Catlin, 2002).

On the other hand, there are numerous reasons to doubt reliability of official indicators, which should be searched for in objective circumstances (e.g. bureaucratized procedures for submitting reports, outdated technology, types of forms), but also in subjective reasons, primarily in non-submitting reports about the use of the means of coercion (Janković, 2010). In sharp contrast to the story told by police administrative data, the public tends to have a very different view of police use of the means of coercion: the police routinely use of the means of coercion (Hickman et al., 2015); the level of force is often excessive (Terrill, 2003); and police target minority citizens (Lersch & Mieczkowski, 2005; Terrill & Reisig, 2003).

Because of the fact there is doubt in official records, and also because official records are sometimes incomplete (e.g. there are missing data about during which operations the means of coercion have been used – operations by the police intervention patrols), in this study we shall examine views of the intervention patrol members who are often in high-risk situation. The paper shall focus on the fact whether the members of the police intervention patrols are ready and trained to apply the means of coercion adequately in accordance with the given legal authorizations.

THE POLICE INTERVENTION PATROLS

The first police intervention patrols in the MOI of the RS were formed in 1992 within the Police station of permanent duty – 92, which by its organization belonged to the Secretariat of the Internal Affairs in Belgrade (Stevanović, 2013b) of that time. By passing the Law on police in 2005, the police intervention patrols have got their own place in other organizational units – regional police directorates. Today they are a part of the Intervention unit 92 (IU 92), which organizationally belongs to the officers on duty of the Police Directorate of the City of Belgrade (Stevanović, 2013a), and also in police stations that are on duty and in charge of intervention within the Police Directorates in Novi Sad, Niš and Kragujevac, while in other Police Directorates of the MOI of the RS they are a part of units on duty.

Training for intervention patrols, according to the special program different from training for other police officers, was in the beginning only for the members of the police intervention patrols within IU 92. From 2010 to 2012 the training was expanded to other members of intervention patrols in other police directorates. In this period the training for intervention patrols was realized as a course for police officers performing their duties in intervention patrols. The subject course was realized as professional development in accordance with the program contents of the Training Program for Police Officers of the MOI of the RS (2010, 2011, 2012), related to IU 92. It was realized by instructors of the IU 92.

Since 2014, according to the Catalogue of Specialist Training Programs (2014), where the Training Program for Interventional Patrols can be found, the training for police officers who perform this group of tasks has been carried out. The target group for this training are police officers who carry out tasks and duties at workplaces in the police intervention patrols of general jurisdiction. A special condition for being chosen for such training is the fact they were graded from 3.00 to 5.00 during the last check of physical abilities. The training segments include operational police skills, firearms training and shooting, police enforcement tactics and mental-tactical training. The duration of the training is 10 days. The emphasis of this training is primarily on acquiring practical skills without theoretical lessons. The aim of the program is to train participants for independent and team work and to perform tasks in the police intervention patrols in the field.

METHOD AND SAMPLE

The empirical research was conducted to find out whether and to what extent the members of intervention patrols of the MOI of the RS are trained to use the means of coercion. The research was carried out using the method of testing, particularly the survey technique (Milošević & Milojević, 2001). The survey paper (a questionnaire) consisted of two groups of questions. The first group of questions was of general character, i.e. it was related to collecting data on the surveyed population, the length of duty in the MOI, completed education, etc. The

second group of questions was related to views of the respondents on the level of training of the police intervention patrols members for the use of means of coercion.

The research was conducted during training of the members of the intervention patrols in the Education centre of the MOI of the RS in Mitrovo Polje, on the mountain of Goč in August 2017. On that occasion, 32 members of the intervention patrols of the MOI of the RS were surveyed anonymously. All respondents were males, with completed police education (The Academy of Criminalistic and Police Studies, the Police High School, or a course for police officers). Out of the total number of respondents, 5 (15.6%) graduated from the faculty, while the remaining 27 (84.4%) completed their secondary schooling. The structure of the sample was presented in Table 1.

Table 1. *Characteristics of the sample*

Characteristic of the sample	Number of respondents	%
Age of the respondent		
18-25 years of age	1	3.1
26-35 years of age	22	68.8
36-45 years of age	7	21.9
46-50 years of age	1	6.2
Work experience		
1-5 years	8	25.0
5-10 years	6	18.8
10-15 years	12	37.5
over 15 years	6	18.8

RESULTS

To the question whether they have used the means of coercion, all respondents confirmed that they used some of the means of coercion stipulated by the Law on police (2016) at least once. The structure of the use of means of coercion is shown in Table 2.

Table 2 .*The structure of the use of means of coercion*

Number of uses	Firearms		Police baton		Restraining devices		Physical force		Chemical agents	
	N	%	N	%	N	%	N	%	N	%
0	31	96.9	15	46.9	2	6.3	9	28.1	31	96.9
1	1	3.1	6	18.8	8	25.0	10	31.3	-	-
2	-	-	2	6.3	1	3.1	2	6.3	-	-
3	-	-	1	3.1	4	12.5	1	3.1	-	-
4	-	-	-	-	1	3.1	3	9.4	1	3.1
5-9	-	-	6	18.8	4	12.5	5	15.6	-	-
10 - 20	-	-	1	3.1	5	15,7	3	9.4	-	-
21-49	-	-	-	-	3	9.4	-	-	-	-
50 and more	-	-	1	3.1	4	12.5	2	6.3	-	-

It is important to emphasize here that only one member used firearms as the means of coercion. The largest number of means of coercion used are related to the use of restraining devices. All respondents used these means of coercion at least once, while 37.5 % respondents used the same more than 10 times. Only one police officer stated that he was the subject of the disciplinary procedure because of unjustified or improper use of means of coercion.

The following question given to police officers was whether there had been situations in which the means of coercion were not used although the legal conditions for their use had been fulfilled. Almost a third of the respondents (10 of them) 31.2 % answered that they were at least once or more times in situations not to use means of coercion although all legal conditions for their use were fulfilled. The respondents gave various reasons why they did not use means of coercion in these situations (Table 3), and the greatest number of respondents answered that the complicated procedure and extensive documentation that should be submitted after the use of means of coercion was the reason not to use them.

Table 3. *Reasons for respondents not to use means of coercion*

The means of coercion used		The respondents who did not use means of coercion and the reason for not using them					
N	%	Complicated procedure and extensive documentation		Fear of disciplinary or criminal liability		Another reason	
22	68.8						
No means of coercion used							
N	%	N	%	N	%	N	%
10	31.2	6	18.8	1	3.1	3	9.4

The police officers were asked about their training related to the use of means of coercion. As many as 75% of them stated that since the beginning of their work in the MOI of the RS they had never had any special training directed to the use of the means of coercion. The respondents in the survey stated their views on the level of training of police officers for the use of means of coercion. Their views can be seen in Table 4. When the questions on the level of training were directed towards other police officers, and in general towards all police officers of the MOI of the RS, the respondents gave negative answers. However, when the question was related directly to them, there were even 22 respondents (68.9%) who stated that they were well trained for the use of means of coercion.

Table 4. *Respondents' views on the level of training of the police officers for the means of coercion use*

No.	Statement	I completely disagree with the statement		I slightly disagree with the statement		I neither agree nor disagree with the statement		I slightly agree with the statement		I completely agree with the statement	
		N	%	N	%	N	%	N	%	N	%
1.	Members of the police of the MOI of the RS are generally well trained for the use of the means of coercion.	5	15.6	7	21.9	12	37.5	8	25.0	-	-

2.	Members of the police in my police station are generally well trained for the use of the means of coercion.	5	15.6	4	12.5	8	25.0	13	40.6	2	6.3
3.	I am well trained for the use of the means of coercion.	1	3.1	3	9.4	5	15.6	17	53.1	5	15.6
4.	The MOI of the RS pays enough attention to training of members of the police to use the means of coercion.	7	21.9	13	40.6	9	28.1	2	6.3	1	3.1

At the end, the respondents gave their opinion about the accompanying paperwork submitted after the use of the means of coercion. Namely, only 3% of the respondents agreed with the statement that the listed paperwork was simple for writing, while 78.2% of the respondents disagreed with the statement. The remaining 18.8% of the respondents had the neutral attitude regarding this question.

DISCUSSION

From the results shown, it can be noted that all respondents used some means of coercion stipulated by the Law on police (2016) at least once in their working career. It was stated that only one of the surveyed police officers used the firearms once. However, the respondent did not state the situation in which he used it, as the Law on Police stipulates that the use of firearms is considered to be its use when the legal requirements are met for citizens, but also animals. In practice, the authors encountered that the firearms were more often used against animals, and there were fewer cases of use against citizens.

It can be noted that police officers have used restraining devices significantly more often than other means in other situations. The reason for this is that other means of coercion are used exclusively in interventions (establishment of disturbed public order and peace, refusal of attack, deprivation of freedom of perpetrators, etc.), where greater intensity of use of force is required, while restraining devices are also used in situations where no greater force is required, where there is consent of a person to be put on official handcuffs, such as in situations of escorting persons to penitentiary institutions for the purpose of serving sentences, escorting persons who do not respond to calls from courts and other jurisdiction organs, etc. Another reason is that the reporting procedure for the use of a restraining device is far simpler than with other means of coercion. In situations in which restraining devices are used, only one form has to be filled in and the entire procedure is completed. In case of use of other means of coercion, the whole case is formed; the lawful use of which is assessed by a direct officer or by a commission, when the means of coercion are used against more than three persons or in cases when the consequences of their use are either fatal or serious bodily injuries. In Canada, in the local police departments, unlike after the use other means of coercion, no report is submitted when restraining devices are used (Boivin & Lagace, 2015), and they are not included in the official statistics concerning the use of means of coercion. The appearance of restraining devices in official statistics gives a false impression that police officers often use

the means of coercion, and the public can get the impression that the police act with too much violence against the citizens. The truth is completely different. The situation when someone stretches out hands and you just put handcuff on him to bring him to a magistrate judge cannot be interpreted to be the same as the use of the police baton, or as the use of restraining device upon the application of physical force after that particular person's resistance.

Another key issue seen in statistical data is that almost one third of respondents did not use the means of coercion, although all the legal requirements for their use were met. The largest number of respondents stated that reasons for that were a complicated procedure and extensive documentation. Police officers of the MOI of the Republic of Serbia have similar answers in the research conducted by Savić (2015). It can be assumed that there is another situation, that is, there are a number of respondents who used the means of coercion without submitting an appropriate report. The reasons for both situations can be different, but Janković (2010) sorted out some of the most frequent ones in his research – ignorance, concealment of illegal and improper use, laziness of the police officer who does not want to go through a complicated procedure of assessing justification and regularity of the use of means of coercion; the arrangement with the perpetrator of a criminal offense or an offense not to record the listed acts and therefore the use of means of coercion, because of material (receiving a bribe) or some other benefit.

The previous problem is related to the fact that only one of the interviewed respondents was subjected to disciplinary proceedings for the illegal use of means of coercion. According to Kesić (2016), an extremely small number of registered cases of illegal use of means of coercion are certainly encouraging, but at the same time it raises the question of justification of scientific research of such rare occurrences as the question of the credibility of statistics. The problem is that official police records rarely or never systematically collect all the information necessary to understand the true nature of interaction of the police and citizens, including the use of the means of coercion by the police (Hickman et al., 2015). This is indicated by the aforementioned problem when respondents did not use the means of coercion although all legal conditions were met. The Law on police (2016) provides that a police officer can use means of coercion only if the task cannot be performed in any other way. It can be assumed that the respondents performed certain tasks using other powers, but it was possible that certain tasks were not completed because they did not use the means of coercion when they had to. If there had been other situations, the number of disciplinary procedures would have been considerably higher.

Regarding the question of training and knowledge of respondents related to the use of means of coercion, it is evident that the police training on this topic is not so intensive, i.e. it is missing. The respondents themselves also assessed this by expressing their views. In addition to the quantity of training, qualitative contents of these trainings are also missing. Namely, training for the police intervention patrols is focused on practical knowledge without any theoretical contents. It is good that members of the intervention teams know the tactics of procedure in certain situations, but they should primarily be familiar with the legal basis for exercising police powers. Unfortunately, in practice, the authors know a considerable number of cases where police officers acted tactfully, but the legal conditions for the use of certain means of coercion were not met. In practice, the authors encountered another banal situation. Namely, the police officers acted tactically and the legal basis was adequate, but after completing the report on the exercise of authority, they did not write the reports correctly, and were subjected to disciplinary procedure because of mistakes in the paperwork. Practical and theoretical knowledge must be complemented.

Finally, it is interesting that the respondents expressed their views in which they estimate that the level of training of police officers in their station and general in the MOI of the RS

was low. Contrary to that opinion, they assessed their own knowledge of the use of means of coercion as good. Obviously, at this point, the human characteristic that we always want to show ourselves in the best possible light became apparent.

CONCLUSION

The results of the study suggest that there is not enough attention paid to the training of police officers regarding the use of means of coercion. All the foregoing point out that the approach to this problem should be changed, that is, the training of police officers should be intensified in order to be continuous throughout the working life. In particular, it should particularly be intensified for the members of the police intervention patrols, which are often in high-risk situations, with greater likelihood of using the means of coercion. A part of the training should be theoretical, with inclusion of the legal basis for using the means of coercion, but they also should be familiar with the forms submitted after the use of means of coercion and the evaluation procedure. If they were explained in more detail, they might not avoid using the means of coercion because of a complicated procedure.

In addition to training, the supervisory task of senior officers who assess the justification of the use of means of coercion in police directorates or police stations should be strengthened. They should intensify their controlling activity, and pay special attention to all suspicious situations. But they should also devote themselves to instruction, in which they will point out mistakes to police officers, both in tactical situations and in filing reports after the use of means of coercion. The objective is not just to punish a police officer, but rather to help him get better in the future in order not to repeat mistakes. Senior officers should analyze detected mistakes at joint meetings with all police officers, so as not to repeat the same, and not to hide them and secretly talk about them. Because of all these things, we believe that the tasks of controlling justification and regularity of the use of means of coercion should be performed by highly experienced police officers who have valuable work experience, immediate knowledge of assessing the use of means of coercion, who were involved in processing or solving a large number of cases of the use of means of coercion and who can compare earlier cases with the present ones.

In addition to education of police officers, it should be checked whether the procedures for submitting reports in cases of use of certain means of coercion could be made less complicated. This should not be insisted on at all costs, but it could be possible when using restraining devices. It should also be considered whether the individual use of restraining devices should be shown in the statistics with other means. It has already been noted that in certain countries the use of restraining devices is not reported and shown in the statistics, since the public may have a wrong picture of the excessive use of force, which can influence the formation of an ungrounded negative attitude of the public on the conduct of the police. All this can make the work of the police more difficult to a certain extent in other areas.

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EFFECTS OF A 4-WEEK TRAINING INTERVENTION ON ESTIMATED VO_2max AND BODY COMPOSITION AMONG FEMALE POLICE OFFICERS: PILOT STUDY

Filip Kukic, MA
Police Sports Education Center, Abu Dhabi Police, UAE

Milivoj Dopsaj, PhD
Faculty of Sport and Physical Education, University of Belgrade

Jay Dawes, PhD
University of Colorado, Colorado Springs, USA

Dunja Prcic
Police Sports Education Center, Abu Dhabi Police, UAE

Abstract

Introduction:

The performance of various female police occupations depends on different physical abilities and body composition. For some duties, police officers are required to be highly skilled and physically fit, while for others, they are more sedentary oriented and physically very inactive. Thus, the aim of this study was to investigate the effects of a 4-week training intervention on VO_2max and measures of body composition in female police officers.

Methods:

A convenience sample of eight (n = 8) healthy female police officers (FPO) (mean age = 38.00 ± 5.24 years, mean body height (BH) = 160.63 ± 4.44 cm, mean body bass (BM) = 80.18 ± 17.10 kg) were analyzed. The FPO's estimated VO_2max, using a 20 m shuttle run, as well as percent body fat (PBF), body mass index (BMI) and corrected index of hypokinesia (IHcorr) (using bioelectric impedance (InBody 720)) were assessed before (test) and after (retest) a 4-week training intervention. This intervention included four 2-hour sessions per week, performed on consecutive days and followed by three rest days. Training consisted of body weight exercises, cardio-boxing, and running.

Statistics:

A series of paired sample t-test were used to investigate the differences between the test and retest results, with the level of significance set at $p < 0.05$, while effect size (ES) was calculated to show magnitude of the training effects on each variable.

Results:

The results of the paired t-test showed a significant training effect on estimated VO2max ($t_{(7)}$ = -2.622, p = 0.034, ES = 1.3), PBF ($t_{(7)}$ = 5.119, p = 0.001, ES = -0.33), BMI ($t_{(7)}$ = 6.398, p < 0.001, ES = -0.05) and IHcorr ($t_{(7)}$ = 5.622, p = 0.001, ES = -0.65). The highest effect occurred in estimated VO2max, while the most affected body composition measure was IHcorr. It appears that estimated VO_2max may be more sensitive to training than body composition over a four-week period and IHcorr may potentially be a better indicator of changes in body composition.

Conclusion:

Organized exercise program could be a very beneficial strategy for improvements in cardio respiratory fitness expressed as EVO_2max and in reduction of ballast fat tissue that often accumulates as a result of time spent in service, physical inactivity or improper eating habits.

Keywords: law enforcement, aerobic, fitness, anthropometry

INTRODUCTION

The majority of duty time police officers spend doing sedentary tasks (administrative work, car patrols). However, sometimes and unexpectedly the tasks of police officers can be physically and mentally very demanding such as rescuing, victim drag, using firearm, chasing suspect (Boyce et al., 2008; Pryor et al., 2012). In that regard, physical fitness of police officers is very important factor for the successful, safe and effective job performance, as well as for the good general health and decreased health risk and risk of injuries (Guffey, Larson and Lasley, 2013; Pryor et al., 2012; Sorensen et al., 2000).

Physical fitness is consisted of several factors (ACSM, 2018), among which aerobic fitness and body composition are considered to be very important building blocks of physical fitness in police occupations (Anderson and Plecas, 2000). For instance, when compared observed tasks to SWAT officers (operating while gear-loaded, operating within the perimeter, tactical entry maneuvers, man down drill), aerobic fitness was placed as the most needed for the effectiveness in performing the tasks (Pryor et al., 2012). Furthermore, when investigated physical characteristics of patrol police officers, Dawes et al. (2017) found that VO2max, number of sit-ups and vertical jump best predicted the performance measured by specifically developed duty-related physical ability test. Conversely, ballast components of body composition such as increased body mass (BM), fat mass (FM) and body mass index (BMI) were shown to be negatively associated with occupational physical ability and increased risk of injuries (Orr and Pope, 2017; Chasse et al., 2014; Dawes et al., 2016; Mitrovic et al., 2015).

Mitrovic et al. (2015) conducted the study on differences in aerobic performance between obese and normal special force police officers and found that police officers with BMI above 30 kg/m^2 (obese) performed lower on 3000 m running test, compared to police officers with BMI below 25 kg/m^2 (normal). Similarly, Dawes et al. (2014) found that FM and percentage body fat (PBF) negatively correlated ($p \leq 0.001$) with 1-repetition maximum bench press, 1-minute push-ups, 1-minute sit-ups, vertical jump height, 1.5-mile run, and VO_2max. Considering the aforementioned studies, it might be concluded that the inverse relationship exists between the ballast components of body composition (FM, BMI, PBF) and performance in various physical fitness tests.

Although the relationship between the fat measures of body composition and physical fitness is shown to be inverse, some studies found that both body composition and physi-

cal fitness gradually get worse by time spent in service, likely due to a decrease in physical activity (Boyce et al., 2008; Lagestad et al., 2014; Sörensen et al., 2000; Kukic et al., 2017). Thus, risk of injuries, reduced occupational ability and health disparities tend increase over time. Conversely, some studies showed that controlled regular exercise program can have a positive effect on body composition and aerobic fitness in a regular population as well as in police officers (Stojkovic et al., 2017; Demling and DeSanti, 2000). Stojkovic et al. (2017) applied 90-minute exercise program, three times a week, for two months, and results showed significant improvements in BM, PBF, waist circumference and VO_2max in 32 female participants aged 35-50 years. Rossomanno et al. (2012) applied 6-months mixed exercise program (brisk walking and strength exercises) on 165 participants (34 female) and found a significant reduction in BM (-1.9kg, $p < 0.05$), BMI (-0.8 kg/m^2, $p < 0.05$) and time needed to complete the task specific physical ability test (-23 seconds, $p < 0.01$) for female participants. Furthermore, Deamling and DeSanti (2000) compared the effects of three different diet and exercise programs on 38 overweight police officers and found that all three controlled programs were successful among which two consisted of diet and exercise were more effective than the one consisted of diet alone (mean fat reduction 7 kg, 4.2 kg, and 2.5 kg).

From the previous paragraphs, it could be concluded that body composition and aerobic fitness are negatively associated to each other and to reduced level of physical activity, but positively associated to organised physical activity and diet programs. However, considering that the number of employed female police officers was always much lower than that of male police officers, often due to physical fitness requirements needed for police occupations (Anderson et al., 2001), there is a lack of scientific literature for this particular population. Moreover, when it comes to exploring the effects of physical training on body composition and physical fitness through an experimental approach, the scarcity of literature related to female police officers is even bigger. Thus, the aim of this study was to investigate the effects of four weeks of controlled and monitored physical training on body composition and estimated VO_2max (EVO_2max) of female police officers.

METHODS

STUDY DESIGN

This pilot study employed a longitudinal observational scientific experimental approach with a sample of convenience of FPO. EVO_2max and body composition measures were collected at the beginning of training program and after one month of controlled exercise program. All testing and training sessions were planned, organized and monitored by the training section of police sports education centre from Abu Dhabi police. All FPO enrolled to weight loss course that was announced through an internal messaging system of Abu Dhabi police. The enrolment criteria were BMI greater than 27.50 kg/m^2, PBF over 30 % and the approval of the medical center that participant is able to join the exercise program. The weight loss course consisted mainly of physical training, however, once a week a 20-minute theoretical lecture was given on certain topic related to importance of physical activity, good eating habits, ways how to improve quality of life through exercise and healthy eating, etc. Lectures were given by the coaches and medical center, depending on the topic of the lecture. To asses EVO_2max, an incremental 20 m shuttle-run test was conducted, while body composition was measured using the method of multichannel bioelectrical impendence analysis. Physical training was consisted of body weight exercises, various modalities of walking, modalities of

running, boxing and Tabata training protocol (Tabata et al., 1996). The data regarding the socio-cultural influence, nutritional and hydration status were not controlled.

SUBJECTS

A convenience sample of eight (n = 8) healthy female police officers joined the study. The main characteristics of the sample were: mean age = 38.00 ± 5.24 years; mean body height (BH) = 160.63 ± 4.44 cm; and mean body weight (BW) = 80.18 ± 17.10 kg. The study was conducted as part of the newly introduced strategy of attracting female police officers to join the physical activities organized by the police sports education center of Abu Dhabi police. All female police officers that joined the program were informed about the purpose and aim of the physical training course and about using its results for the publishing purposes and it was emphasized that there will be no any information about the name military number or any identifying possibility, ensuring the unanimity of the results. However, the subjects were included in the study only if they voluntarily agreed to be part of it. This study was carried out in accordance with the conditions of declaration of Helsinki, recommendations guiding physicians in biomedical research involving human subjects (WHO, 1996), and with the ethical approval number 484-2 of the ethical board of the Faculty of Sport and Physical Education, University of Belgrade.

MEASUREMENT PROCEDURES

The female police officers' EVO_2max was measured using an incremental multi-stage 20 m shuttle-run test on an indoor rubber matt. The shuttle run levels were controlled using the mobile app beep test: police military multi stage assessment (Rehegoo SP. Z.O.O), connected to the loud speaker so each change of the level was clearly and loudly announced. After the test was finished, the results were written down in forms of levels and shuttles attained by each participant. To further estimate VO_2max, the results were typed into Microsoft office excel file (Office 365, subscription 2018) and calculated using the formula developed by Ramosbottom et al. (1988), which is based on age and completed number of levels and shuttles. Body composition was measured using the method of direct segmental multi-frequency bioelectrical impedance analysis (BIA), employing InBody 720 machine (Biospace, Co., Ltd, Seoul, Korea), which was previously shown to be very reliable (ICC = 0.97) (Aandstad et al., 2014). The measurements were conducted according to standard manufacturers' recommendations (Biospace, 2004). All participants fasted minimum for five hours before the measurements being taken, and they were standing steadily for a minimum of five minutes prior to the measurements to allow a proper redistribution of body fluids. While the only exception was that participants were measured in light clothes, due to the certain cultural rules, they were measured according to the procedures that have been previously reported in the literature (Kukić and Dopsaj, 2016; Kukić and Dopsaj, 2017). The result sheet of each participant was printed out with numerous variables available (Biospace, 2004) but only three body composition measures (BM, PBF, and BMI) from InBody 720 machine were used for the purposes of this study, while fourth measure was newly developed – corrected index of hypokinesia (IHcorr – calculated as (PBF x PBF) / BMI). The rationale for developing IHcorr is based on the fact that BMI, PBF and percent of skeletal muscle mass can be misinterpreted given that BMI may remain the same even though at the same time the amount of fat in the body can increase, while muscle mass decreases (Kyle et al., 2001).

TRAINING PROGRAM

The physical training intervention included four, 2-hour sessions per week, performed on consecutive days (Sunday, Monday, Tuesday, Wednesday) and followed by three rest days (Thursday, Friday, Saturday). The training timing and length of the sessions were planned according to duty schedule of the female police officers that joined the weight loss course. They were called by the phone and asked about the possible timing and according to their answers, the plan was set. The sessions were held for two hours, starting at 01:00 pm, from Sunday to Wednesday. The only reason for three consecutive days of rest is that many of participants lived up to 300 km from Abu Dhabi where they come to work, so on Thursdays they are leaving Abu Dhabi to go home as soon as they finish duty. If the theoretical lecture was about to be given it would occur during the first 20 – 30 minutes of the session. The training consisted of body weight exercises for upper body, lower body and core, walking, running, and cardio-boxing while the total load, intensity and complexity were increasing gradually as the program progressed (Table 1). The focus was on engaging a big muscle groups and maintaining the heart rate in light to moderate aerobic zones for as much time as possible during the session. The secondary goal was teaching the female police officers about how to stay active after the course. The last but not least, the tertiary goal was introducing what is needed to get ready in order to pass the mandatory annual physical ability test.

Table 1. *The progression of the training program throughout the four weeks.*

	Warm up	Main part	Cool down
Week 1	Walking and light transition to running, Walking in circle on Jiu-jitsu matt with various tasks.	Body weight exercises, 2 sets, Light steady state cardio – walking 55 % of HRmax, Functional training (circuit – full body), Technique and basic of Boxing.	Full body static stretching.
Week 2	Walking and running drills from week 1, Increasing mobility and stability, Dynamic stretching.	Body weight exercises, 3 sets, Steady state cardio 60 % of HRmax, Strength – circuit training – full body, 2 rounds, Boxing- 4 x 1 min.	Full body static stretching.
Week 3	"Relay race" with different tasks and speeds, Mobility, stability and dynamic stretching from week 2.	Interval training 15 sec speed up, 40 sec walk, Strength – circuit training, 2 x 6 exercises, 3 rounds, Steady state cardio 60 % of HRmax, TABATA 15 – 15s, 4x4 min, Boxing – 4 x 2 min.	Full body static stretching, Stretching while walking.

Week 4	Jogging, Throwing and catching drills, Jogging in a circle on Jiu-jitsu matt with various tasks.	Steady state cardio 60 – 70 % of HRmax, Strength – circuit training – full body; 4 rounds, Intervals 30 sec speed up, 40 sec walking, Boxing – 5 x 2 min, TABATA 15 – 25 s, 4x6 min.	Full body static stretching, Stretching while walking, Stretching assisted by partner.

STATISTICAL ANALYSIS

All results were entered into Microsoft excel for further analysis. Descriptive statistics for measures of central tendency and dispersion mean and SD were calculated in Microsoft excel. A series of paired sample t-test were conducted using statistical package for social sciences (IBM, SPSS Statistics 20) to investigate the differences between the test and retest results, with the level of significance set at $p < 0.05$. The effect size (ES) was calculated to show magnitude of the training effects on each variable. The ES was calculated as the differences in mean scores as a proportion of the standard deviation, following the formula: $ES = (M_2 - M_1)/SD_1$, where M_1 and M_2 are the means at test and retest and SD1 is a standard deviation at test. The magnitude of the effects was defined as follows: small = 0.2, moderate = 0.6, large = 1.2 and very large = 2.0 (Sullivan and Feinn, 2012).

RESULTS

The means and standard deviations (SD) for all variables before the start of the exercise program and after one month of the program are shown in Table 2. Observational relative changes showed increase in EVO_2max, while BM, PBF, BMI, and IH were found to decrease after four weeks of applied physical training. The biggest relative change was found in EVO_2max, suggesting that the training had more of an effect on EVO_2max than on body composition. The change in PBF is bigger than in BM and BMI, suggesting the effects of applied training on reduction in PBF. However, the relative change in IHcorr was much higher than in PBF and BMI which could mean that training had an effect on increase in muscle mass.

Table 2. *Estimated VO_2max and body composition characteristics at a baseline and after 4 weeks of training, and their relative changes.*

Variables	Test Mean ± SD	Retest Mean ± SD	Δ (%)
Age	38.00 ± 5.24	38.00 ± 5.24	
BH (cm)	160.63 ± 4.44	160.63 ± 4.44	
EVO_2max (ml/kg/min)	21.43 ± 1.93	23.94 ± 3.51	11.71
BM (kg)	80.23 ± 17.21	79.31 ± 16.86	-1.14
PBF (%)	42.89 ± 6.98	40.63 ± 7.67	-5.26
BMI (kg/m^2)	31.19 ± 7.17	30.85 ± 7.07	-1.09
IHcorr (% / kg • m^{-2})	59.42 ± 8.97	53.56 ± 9.09	-9.86

Δ = Relative changes in EVO2max and body composition.

According to the t-test results, all investigated variables were found to be significantly affected by training, among which BMI was the most affected (Table 3). However, considering the mean test-retest differences and corresponding ES results, a magnitude of the applied training was significant only in EVO_2max (large), PBF (very large) and IHcorr (moderate) (Table 3). Note that SDs became lower in BM and BMI but higher in EVO_2max, PBF and IHcorr, which might be due to differences in magnitude of the progress among participants, meaning that training might have more of an effect on the female police officers with a lower aerobic fitness and higher level of body fat. Furthermore, t-test and ES results indicate that applied training had an effect in a minimum of 95% of subjects on EVO_2max as well as on body composition, but the effect sizes were different. These additionally suggest that EVO_2max and body composition were affected in a different degree and that PBF and IHcorr were affected more than BM and BMI.

Table 3. *The paired sample t-test and effect size results.*

Variables	**Mean Difference**	***p***	ES
EVO_2max (ml/kg/min)	2.51	0.034	1.30
BM (kg)	-0.91	0.005	0.05
PBF (%)	-2.26	0.001	2.26
BMI (kg/m^2)	-0.34	0.000	0.05
IHcorr (% / kg • m^{-2})	-5.87	0.001	0.65

DISCUSSION

The aim of this study was to investigate the effects of a 4-week planned and monitored physical training on EVO_2max and body composition of female police officers. The main findings suggest that applied training had a positive effect on both, EVO_2max and all investigated body composition variables. EVO_2max increased averagely for 2.51 ml/kg/min, while BM, PBF, BMI and IHcorr significantly decreased by 0.91 kg, 2.26% and 0.34 kg/m^2. However, the magnitude of improvements in EVO_2max, PBF, and IHcorr were much bigger than in BM and BMI (Table 3). Since BM, BMI, PBF and IHcorr all improved significantly, but PBF and IHcorr changed in a higher degree, it could be concluded that overall body status of female police officers (BM and BMI) was changed mainly due to reduction in fat mass. Moreover, higher degree of change in IHcorr suggests an increase in skeletal muscle mass. In that regard, similar results were shown in the study that included diet and resistance training, where even though police officers reduced BM and BMI for only 2.8 kg and 1 kg/m^2 they reduced PBF for 8 % and gained 4% of lean body mass (Demling and DeSanti, 2000). In addition, higher training effects on EVO_2max than on BW and BMI suggest that EVO_2max is more susceptible to adaptations on applied physical training than body composition.

When conducted a 6-month supervised employer-based minimal exercise program for police officers (34 female police officers), Rossemano et al. (2012) found significant reduction in time (-21 second, $p < 0.01$) needed to complete the job-related physical ability test (consisted of running, jumping, negotiating the cones, climbing stairs, dragging dummy, pushing, pilling and firing the weapon), -1.9 kg reduction in BM and -0.8 kg/m^2 reduction in BMI. In a twice-shorter follow-up study (12 weeks) Demling and DeSanti (2000) applied tree different approaches to lean mass development and fat mass reduction in overweight police officers.

One group of officers was placed on a hypocaloric diet (80 % of predicted needs) and two groups were on hypocaloric diet, with included resistance training and increased protein intake (1.5 g/kg of BM). The difference between these two groups was that one group was using casein protein hydrolysate, while other one was using whey protein hydrolysate. The average weight loss in a total sample of participants was 2.5 kg, among which training plus casein group decreased BM the most (7 kg). After 12 weeks of the experiment PBF decreased in all three groups with the biggest change again in casein plus training group (8%), comparing to 2.5% and 4.2% in diet alone and whey protein plus training. Comparing to our results, both aforementioned studies showed bigger changes in BM, BMI and PBF, but both studies also lasted longer. However, the results of Demling and DeSanti body composition measurement after 4 weeks were very similar to our results because their officers averagely reduced BM for 1.3 kg and PBF for 2%, suggesting that both approaches could be an effective 4-week strategy of BM and PBF reduction.

STUDY LIMITATIONS

This pilot study is not without the limitations. The sample of the female police officers was stratified and relatively small. It is not certain that the same results would occur if the same training design and methods were applied to female police officers with better body composition and physical fitness. Furthermore, the participants spent only two hours daily in the training center under the control of the coach, while the whole other time they were not controlled regarding the eating habits, meal portions and the type of food they choose, meaning that only 8 hours weekly they were certainly doing according to the prescribed plan and program. Although the instruction was given not to eat or drink minimum for five hours before the measurements, it was hard to control because the body composition measurements were conducted at 01:00 afternoon.

CONCLUSION

There is a scarcity in amount of longitudinal studies investigating the strategies of physical fitness improvement in female police officers and even though this research is one of the studies filling the gap, many more is needed in the future. The results of this study suggest that organized exercise program could be a very beneficial strategy for improvements in cardio respiratory fitness expressed as EVO_2max and in reduction of ballast fat tissue that often accumulates as a result of time spent in service, physical inactivity or improper eating habits. Furthermore, according to methods applied in this study, the training facility with basic minimum equipment for conducting physical training classes is quite enough for successful planning and applying the exercise program such as weight loss course.

PRACTICAL APPLICATION

This study was one of the first that investigated a short-term strategy of applying controlled exercise program to affect the positive changes in body composition and cardio respiratory fitness of female police officers. The results clearly showed that the strategy was successful, which encourages the police physical trainers and physical conditioning departments to implement a short-term exercise programs in order to fight the negative effects of

the worldwide spread hypokinezia. Furthermore, through these strategies various workshops and lectures can be held to influence the motivation for physical activity and emphasize the importance of good eating habits for a healthy lifestyle of female police officers.

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EFFECTS OF A 12-WEEK PHYSICAL TRAINING PROGRAM AND NUTRITION PLAN ON THE BODY COMPOSITION OF OVERWEIGHT POLICE TRAINEES

Aleksandar Čvorović, PhD
Police Sports Education Center, Abu Dhabi Police, UAE
cvorovic77@yahoo.com

Robin Orr
Tactical Research Unit, Bond University, Australia

Novak Bacetić
Abu Dhabi Police College, UAE

Abstract

Introduction

Although the daily tasks of police officers are mostly sedentary, optimal body composition and physical abilities are important for the occasional high intensity task duties that may occur and for general health. However, the nature of policing (e.g. shift work, long work hours) may negatively impact an officer's body weight and physical activity patterns and is therefore associated with increased health risks. The aim of this study was to evaluate the effects of a 12-week physical training program and a caloric deficit nutritional plan on police trainees.

Methods:

Fifty-five (n = 55) male trainees (mean age = 28.51 ± 5.26 years, mean body height (BH) = 174.58 ± 5.79 cm, mean body mass (BM) = 97.67 ± 11.21 kg) were included in this analysis. A 12-week physical training and nutrition plan was implemented for the police trainees during their professional postgraduate education at the Abu Dhabi Police College. The physical training program consisted of 12 hours per week during the first six weeks and nine hours per week during the second six weeks. The nutritional plan consisted of six weeks in controlled caloric conditions (caloric deficit 500 Kcal) and six weeks in partially controlled conditions (no insights on food intake over the weekend). A body composition analyser (InBody 370) measured body mass index (BMI), body fat percentage (PBF), and skeletal muscle mass percentage (PSSM). A paired sample T-test, and effect size (*Cohen's d*) with percentage differences (%) were used to evaluate the training effects and magnitude of training and nutrition plan changes. Significance was set at $p = 0.05$ a priori.

Results:

At the end of the 12-week program trainees significantly reduced BM ($t_{(54)} = 24.77$, $p < 0.001$, $d = 3.34$, 11.45%), BMI ($t_{(54)} = 23.28$, $p < 0.001$, $d = 3.14$, 11.68 %) and PBF ($t_{(54)} = 22.53$, $p < 0.001$, $d = 3.04$, 20.70%), while significantly increased the PSMM ($t_{(54)} = 21.98$, $p = 0.001$, $d = 2.96$, 9.88%).

Conclusion:

A dedicated 12-week physical training program with a caloric controlled nutritional plan can lead to significant improvements in the body composition of overweight police trainees and reduce their associated health risks.

Keywords:

law enforcement, caloric deficit, fitness, health.

INTRODUCTION

The question of body composition and its manifestation in the form of obesity is a frequent subject in all segments of society and among different occupations (Lukaski, 2017). As such, it is also present in law enforcement, fire fighters and military personnel (Daves et al., 2016; Michaelidis et al. 2011; Friedel, 2012). Apart from proven negative health effects, a sub-optimal body composition can also directly affect the successful job performance of a modern policeman (Daves et al., 2016). In their study, Violanti et al. (2017), confirmed that increments in 1% of body fat (BF) leading to 10 seconds slower running times in a 2.4 km running test, and decrements of approximately 1 repetition in push-up and sit-up tests. In the same study the authors found that BF was inversely related with fitness levels regardless of age, sex, race, rank and the geographical area (Violanti et al., 2017).

Body composition and physical abilities are crucial building blocks of health and physical fitness (ACSM, 2013). It is widely known that both are influenced by numerous factors such as diet, stress, physical activity levels and lifestyle choices (Wang et al., 1992). Research has shown that socio-cultural and occupational factors can influence body composition and physical fitness in a police workforce (Boyce et al. 2008; Sorensen et al., 2000; Lagestad and van den Tillaar, 2014). Boyce at al. (2008) showed that male police officers gained 4.8% ± 4.8 of fat on average while percent of obese participants increased from 26% to 64% during 12.5 years of service. Comparable results have been observed by Sorensen et al. (2000). These researchers discovered that Finnish police officers showed significant increases in body mass (BM), body mass index (BMI) and waist circumference (WC) after 15 years of service. It was also found that relative VO_2max (ml/kg/min), sit-ups, push-ups, and pull-ups significantly decreased. Even though leisure-time physical activity increased within this time frame, the total energy expenditure decreased. This was most likely due to technological changes that resulted in a reduction in the activity levels required to perform job requirements and activities of daily living (Sorensen et al., 2000). Recently, Lagestadt and van den Tillaar (2014) found that the amount of maximal strength training and bodybuilding training decreased significantly after only 3 years of police service. Practically, physical capabilities and body composition as individual parts of general physical fitness of police employees influence each other and are affected by many other cofactors. Moreover, increases in proportion of fat in the human body has been shown to decrease potential of motor abilities (Daves et al., 2016; Orr et al., 2017), while incremental changes in lean skeletal muscle mass are related to improved motor abilities and performance in police officers, which is highly important for better quality of life, higher professional competency, lowering stress level and better health (Anderson et al.,

2002; Janssen et al., 2000; Andern et al., 2003; Daves et al., 2016; Boyce et al., 2014; Pihlainen et al., 2018). Reasons for increased body fat are different and influenced by numerous factors with imbalances between kilocalories consumed and kilocalories burned the most common reason for an increase BF associated increase in body mass (Davis and Abel, 2017). Another contributing factor is sedentary behaviour, and low levels of physical activities (ACSM, 2018). Long working hours and shift work (especially during the night), have the effect of increasing obesity as well as all the accompanying risk factors for law enforcement employee's general health (Gu et al., 2012). Gu et al. (2012) found that the prevalence of obesity in the US police officers is very high, more specifically, they found an obesity prevalence (BMI > 30 kg/m^2) of 40% in a sample of 300 male police officers. While Da Silva and colleagues (2014), in their systematic review, found different ranges of anthropometric indicators of obesity ranging from 29 - 81% in samples from observed studies.

In the Gulf region, the obesity problem is also one of the biggest health concerns (Ng et al., 2011a; Ng et al., 2011b). As such this concern is also present in police officers where the levels of obesity are very high. In their study in this population, Kukic and Dopsaj (2016), found that 71% of Abu Dhabi policeman were overweight (based on their BMI), although with adjustment related to percentage of body fat and percentage of skeletal muscle mass, they found that prevalence of obesity level was a little lower at 59% as some participants were more muscular. There is also a noticeable decline in physical performance and body composition between police cadets during schooling and regular employees (Jeknic and Stojkovic, 2017; Cvorovic and Maamari, 2001; Kukic et al., 2017), and all studies confirmed that cadets had more classes of physical training and overall physical activity than the regular police employees.

The main goal of this research was to determine the effects of a 12-week intervention of physical training and a caloric deficit in the controlled conditions of the police campus. The leading hypothesis of this research was that, under the influence of planned physical training and a recommended caloric deficit, it was possible to significantly affect the loss of body fat while maintaining and improving the relative values of skeletal muscle mass.

METHODS

Participants

The study employed an experimental longitudinal approach and consisted of initial testing, a 12-week physical training program with a nutrition plan, and final testing. A convenience sample of overweight male police trainees took part in the study [n = 55; mean age = 28.51 ± 5.26 years, mean body height (BH) = 174.58 ± 5.79 cm, mean body mass index (BMI) = 32.03 ± 3.03 kg/m^2 and mean body mass (BM) = 97.67 ± 11.21 kg)]. Trainees were undertaking their professional postgraduate education course at the Abu Dhabi Police College (ADPC). Prior to joining the course, trainees were required to pass a standardized medical examination. Upon completion of their education, the participants were obliged to take the final examination of physical abilities, and if they failed to meet the prescribed standards they did not successfully complete the studies. This group of trainees was treated differently from the beginning of the course because they were overweight. The inclusion criteria in the training program were BMI > 24.99 kg/m^2 and PBF > 22%. These trainees trained apart from their classmates and they were excluded from standardized physical training during physical education classes. The testing protocol and experimental procedure were implemented in accordance with the Helsinki Declaration (World Medical Associations, 2014), for testing on human subjects and with the approval of a Police Sports Education Centre.

Training program and nutrition plan

The training program was achieved through two training sessions per day with each lasting one hour. Morning training sessions were conducted from 06:00 to 07:00, while the afternoon sessions were from 17:00 to 18:00 (Table 1). The training program was guided by an instructor for a group of 25-30 cadets. It was performed outdoors, at the ADPC campus. Each session had a warm-up and cool-down phase, with the warm-up consisting mainly of jogging, calisthenics and mobility exercises while the cool-down included passive stretching. The main component of the training changed with every session, it included a strength circuit, a cardio circuit, agility work, core exercises, interval running, steady state running, flexibility and mobility components. One of the priorities was also the gradual progression in training load in order to reduce the potential of possible injuries and to avoid possible absences from training during the duration of the prescribed program. The aggravating circumstance was that besides the regular hours of physical education, the trainees also had regular military line-up drills, marching drills and moving in formation drills, and almost all activities were performed on a concrete surface and in police uniforms and personal protective equipment.

Table 1: *12-week training program sample designed for ADPC trainees to lose weight and improve overall fitness.*

Mesocycle 1							
Week 1-6	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Morning (06:00-07:00)	10 min WU 20 min W-R 20 min SC 10 min CD	10 min WU 20 min W-R 20 min CC 10 min CD	10 min WU 20 min W-R 20 min IT 10 min CD	10 min WU 20 min W-R 20 min SC 10 min CD	10 min WU 25 min SSR 15 min BE 10 min CD	10 min WU 20 min W-R 20 min BE 10 min CD	Rest
Afternoon (17:00-18:00)	15 min WU 35 min A&C 10 min CD	15 min WU 35 min BE 10 min CD	15 min WU 35 min A&C 10 min CD	15 min WU 35 min C&F 10 min CD	15 min WU 35 min C&F 10 min CD	15 min WU 35 min SC 10 min CD	Rest
Mesocycle 2							
Week 7-12	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Morning (06:00-07:00)	2 km run <12 min 35 min SC 10 min CD	2 km run <12 min 35 min CC 10 min CD	2 km run <12 min 35 min IT 10 min CD	2 km run <12 min 35 min SC 10 min CD	15 min WU 30 min SSR 15 min CD	Rest	Rest

Afternoon (17:00-18:00)	15 min WU 35 min A&C 10 min CD	15 min WU 35 min BE 10 min CD	15 min WU 35 min A&C 10 min CD	15 min WU 35 min C&F 10 min CD	Rest	Rest	Rest

WU - Warm up, W-R - Walk and run, SC - Strength circuit, CC - Cardio Circuit, CD - Cool down, A&C - Agility and Coordination, BE - Bodyweight Exercises, C&F - Core and Flexibility, SSR - Steady State Run.

The nutrition plan was designed individually based on an assessment by a qualified nutritionist and based on the individual caloric needs of the trainees. The basic strategy was based on an estimate of individual daily caloric consumption with the obtained value then reduced by 500 kilocalories (kcal). It was assumed that trainees belonged to the category of "very active" according to physical activity factor (PA). The PA factor for adult males has four categories (Sedentary [PA=1.00], Low active [PA=1.11], Active [PA=1.25] and Very active [1.48] (Hertzler and Carlson-Philips, 2017). Estimated energy requirement (EER) was calculated by the Institute of Medicine formula for male adults (2006).

EER= 662 - 9.53 x age in years + PA x (15.91 x weight [kg] + 539.6 x height [m])

During the first 6-week period, the trainees were in completely controlled conditions, since they were not allowed to leave the campus. However, during the next 6-weeks they were permitted to leave the campus over the weekend period and, as such, there was no insight into their food intake during their weekend leave period.

Testing procedure

The testing procedure consisted from initial BH assessment and two measurements of the body composition before and after the experimental procedure was completed. Measurements of body composition were carried out on an InBody 370 device (Biospace, Seoul, South Korea). Trainees were instructed to fast overnight prior to each body composition measurement and were restricted fluid intake for up to 3 hours beforehand. Throughout the assessments trainees were barefooted and dressed in shorts and a t-shirt. All body composition measurements were conducted in an indoor environment, temperature controlled to 22 °C.

Statistics

The statistical analyses were performed using SPSS ver. 20 (IBM, Armrok, USA). All data were expressed as mean ± standard deviation (SD), range, minimum (Min.) and maximum (Max.) values. Data were checked for normality using the Kolmogorov–Smirnov test. A paired sample T-test, and Cohen's effect size (*d*) with percentage differences (%) were used to evaluate the training effects and magnitude of training and nutrition plan changes. Significance was set at $p = 0.05$ a priori.

Results

descriptive data are shown in Table 2. It is evident that the participants significantly decreased BM ($t_{(54)} = 24.77$, $p < 0.001$) by 11.18 kg, BMI ($t_{(54)} = 23.28$, $p < 0.001$) by 3.75 kg/m^2,

and body fat percentage ($t_{(54)} = 22.53$, $p < 0.001$) by 6.75%, while the relative improvement of the active body mass component in the form of skeletal muscle mass was achieved ($t_{(54)} = 21.98$, $p < 0.001$) by 3.76% respectively.

Table 2: *Descriptive data before and after 12-week intervention and estimated energy requirements (EER) and with 500 kcal deficit ($EER_{[-500]}$).*

N=55	Mean	SD	Range	Min.	Max.
BM-1 (kg)	97.67	11.21	56.90	77.80	134.70
BM-2 (kg)	86.49*	9.35	46.40	70.10	116.50
BMI-1(kg/m²)	32.01	3.03	12.60	27.30	39.90
BMI-2 (kg/m²)	28.27*	2.36	10.30	24.00	34.30
PBF-1 (%)	32.56	5.75	30.30	20.80	51.10
PBF-2 (%)	25.81*	5.71	25.90	16.60	42.50
PSMM-1 (%)	38.06	3.45	17.93	27.31	45.24
PSMM-2 (%)	41.82*	3.44	15.86	31.87	47.73
EER (kcal)	4079.86	280.32	1558.26	3530.64	5088.90
$EER_{[-500]}$ (kcal)	3579.86	280.32	1558.26	3030.64	4588.90

* Significantly different from initial scores, $p < 0.001$.

The relative values and direction of change in the measured elements of body composition are shown in Figure 1.

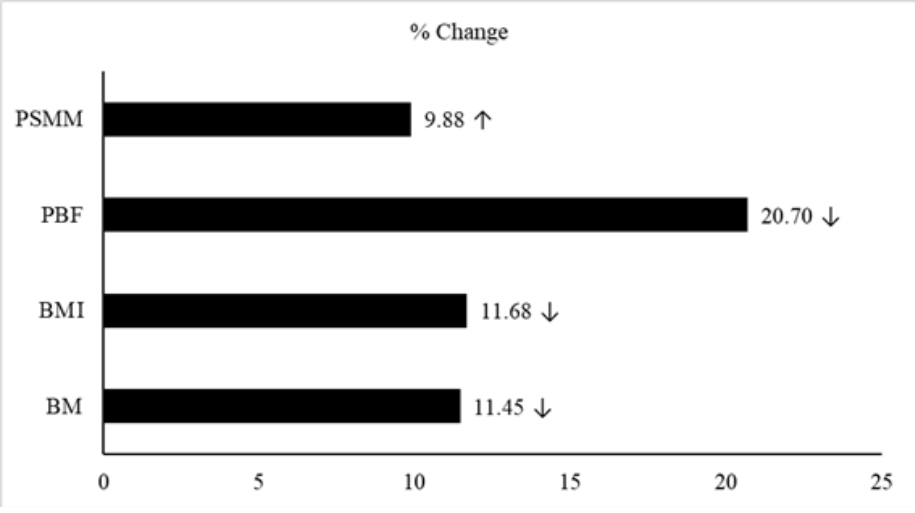


Figure 1: *Relative percentage changes (%) in body composition, (direction of change) ↑- increase, ↓-* decrease)

All ES values were considered large (ES > 0.8) with the most affected variable being BM, followed by BMI, PBF and PSMM (see Table 2).

Table 3: *Effect size of experimental intervention on body composition.*

Variables	Mean Differences	SD±	Effect Size Cohen's (d)
BM	11.18	3.35	3.34***
BMI	3.75	1.19	3.14***
PBF	6.75	2.22	3.04***
PSMM	3.76	1.27	2.96***

*small (0.2-0.5), **moderate (0.5-0.8), ***large (> 0.8).

DISCUSSION

This study confirmed that a planned 12-week physical training program in combination with an individually tailored diet plan can significantly affect the body composition of overweight police officers in the controlled conditions of the ADPC campus. The results of this study supported the training program approach taken given that the primary goal was to reduce fat tissue without a loss of skeletal muscle mass and not only was the fat tissue reduced but there was an increase in skeletal muscle mass. Thus, the study's hypothesis can be fully supported and explained by the obtained and presented data.

In a similar population of police personnel Kukic et al. (2017) found significant differences between police cadets (PC) and police employees (PE) in relation to BM and BMI, with a clear conclusion that the obesity prevalence was more present in PE. Thus, the data from the present study support the findings of Kukic et al. (2017) given that they represent the same population of officers from the same institution used previously. From the aforementioned study by Kukic et al (2017), the most notable finding was that, in case of PE, 67% of participants had an increased BMI (above 24.99 kg/m^2). Even though there is always the possibility to some over-muscular PE would have increased the BMI, the level is still considered a very high level of pre-obesity and obesity prevalence. In the case of the PC, it is quite different, and the presence of pre-obesity and obesity was at a more acceptable level (39%), as it is confirmed by the above-mentioned and similar research in the region, related to PC (Jeknic and Stojkovic, 2017; Cvorovic and Maamari, 2017). A potential reason for these findings of differences between PC and PE may lie in the lack of physical activity and more sedentary work life of the PE, which is largely limited during the police academy or the college. Another factor may be the impact of biological aging, which may not be the case given the findings of Orr et al (2017). Regardless, aging should not be an excuse in the case of PE as they are required still to perform job tasks (Orr et al., 2017). Again, the findings from this study support the fact that even in the case of pre-obese and obese trainees, it is possible to significantly influence body composition changes and reduction of health risks through increased physical activity and caloric deficit regardless of age.

A very informative research on the effects of a hypocaloric diet, increased protein intake and resistance training was carried out by Demling and DeSanti (2000). Precisely, the study was designed so that the overweight (BF of 23-35%) police officers were divided into three groups, with one group consisting of overweight police officers on a hypocaloric diet regime, but without resistance training. The second and the third group consisted of police officers using two diverse types of protein supplements (casein and whey protein), and resistance

training. Diet-alone group decreased BF by 2% in 12-week period. While on diet, whey protein and resistance training the decrease was 4% of BF, and with the group on diet, casein and resistance the decrease was 8% of BF (Demling and DeSanti, 2000). There are differences in the design of the above mentioned and this study, primarily in the number and types of physical trainings (4 vs. 9-12 weekly), as well as the conditions of stay, there was no specific supplementation in the realized study, and the method of measuring the body composition was different (skinfold vs. InBody). However, there are certainly some similarities in the effects, conclusions and length of the study, primarily in the loss of body fat levels under the influence of caloric deficit and regular and controlled physical training (Demling and DeSanti, 2000). Finally, since the regular hypocaloric meals within the campus followed by increased level of planned exercise program can cause additional loss in muscle mass, the use of additional supplementation (such as protein, vitamin and mineral) could be beneficial.

Limitations

Although it is essentially a well-designed study and with high values of the effects of experimental intervention, it is certainly not without limitations. First, it would be interesting to determine the effects of the procedure on physical abilities, as well as compare it with other course participants who were not part of this specific group. Another drawback would be the lack of mid-point measurements (body composition and physical abilities) between the first 45 days in relation to the second part, when they were out of the campus during the weekend. Also, the use of modern activity tracking devices (to monitor the level of activity and total energy consumption at the individual level) would contribute to more efficient and more precise control of both physical training and nutrition plan. One step further would be to collect blood samples during the experimental procedure, as well as to analyse hormonal status in order to gain full insight into the physiological and metabolic effects of this or similar programs in LE.

CONCLUSSION

A worldwide epidemic of obesity certainly affects the members of the law enforcement force. It is not uncommon for members of the police even to have a lower level of physical preparedness and worst body composition compared to the general population (Collingwood et al., 1998), which must be acknowledged that represents a sort of absurdity. As mentioned earlier, the reasons are calorie imbalances and irregular physical activity, but the nature of the work itself in some cases. Most of the above-mentioned causes and consequences are confirmed by this study as the trainees were a sample from the regular police workforce in the Abu Dhabi region. The implemented method is quite demanding, and it is unfeasible for the broad police population, because this is a selected entity of police trainees who were selected for professional development by the recommendation of their departments. It is also important to note that staying in controlled conditions of the police campus probably had a crucial role in improving body composition parameters, because the calorie intake was controlled, as well as the volume and intensity of physical training. Of course, the obtained results and effects of this study should be used in practice and in similar conditions, but regular annual or semi-annual testing and regular physical activity in accordance with the prescribed standards would certainly be an effective and permanent solution. Based on the surveys and results from the field conducted so far, the police of Abu Dhabi has introduced since 2017 mandatory annual fitness testing for members of the police, and in the coming years positive changes and effects of such a decision are expected. For the process to be completely purposeful, it is

necessary to broaden the analysis and re-evaluation of the collected data and to set a clear standard in accordance with the needs of this specific population.

Practical application

The practical application of this or similar programs, especially in controlled conditions of the police academy, military school or similar institutions is certainly recommended. The existence of such programs should be a constant practice within the framework of any law enforcement system in which implementation is possible. It is meant not only within the obligatory courses, for employment or promotion, but as a regular program for the prevention and reduction of negative impacts of inadequate body composition not only on performance, but also on the overall health of the members of the police workforce.

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PERFORMANCE APPRAISAL OF CIVIL SERVANTS - COMPARATIVE PERSPECTIVES[1]

Zorica Vukašinović Radojičić, PhD
University of Criminal Investigation and Police Studies, Belgrade
zorica.vr@kpa.edu.rs

Aleksandra Rabrenović, PhD
Institute for Comparative Law, Belgrade
a.rabrenovic@iup.rs

Safet Korać, MA
The Ministry of Interior of Montenegro
safet.korac@mup.gov.me

Abstract: A number of European countries introduced new civil service performance appraisal systems over the past decade. The current reform trends in the EU member states emphasise the need for development of a modern performance appraisal model, where measurable performance targets, agreed between civil servants and their superiors, constitute the main performance appraisal criterion. There is also a visible trend of linking performance appraisal to other human resource management functions, such as promotion, professional development, remuneration, mobility, termination of employment.

This paper provides a comparative review of good practice of performance appraisal in European countries. Comparison of European countries performance appraisal models provides an opportunity for learning from experiences and problems of others, taking into account particularities of national administrative systems. Improvements in the methods, criteria, ratings and style of communication are the most debated instruments.

In the context of current changes of the Serbian civil service legislation, the emphasis is on development of professional capacities and introduction of modern performance appraisal system. The authors assess the current performance appraisal system in Serbia, pointing out its strengths and weaknesses, measured against the SIGMA Principles of Public Administration and give proposals for its improvement.

Keywords: Public administration, Performance appraisal system, European administrative principles, Serbian civil service system.

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INTRODUCTION

One of the most widespread reforms in public administration in the past decades has been the requirement for public organizations to set and measure strategic goals and achievements or so-called "result based reforms" (Staronova, 2017). The EU member countries are not immune to such trends and, as a consequence, practices and techniques, such as performance appraisal are being introduced in public administration. Performance appraisal is a formal, organizationally approved event which focuses on performance dimension and is based on criteria that are used in the evaluation process (DeNisi, Pritchard, 2006: 253-277).

Civil servants' performance appraisal is one of the human resource management functions, providing grounds for human resource decisions – career planning, training, rewards, mobility, and termination of employment. The main idea is to monitor the work and professional development of civil servants and provide promotion to a higher post based on operational results and the received marks (Demmke, 2007; Demmke, Hammerschmid, Meyer, 2008). It aims to remove the failures in the work, encourage better results and provide conditions for fair decision on their promotion and professional development (Stjepanović, 1958:.397).

The contemporary appraisal model provides an opportunity for the employer to communicate to a civil servant what are the values, missions, visions and objectives of the organization. It should be based on agreeing and evaluating the work objectives (performance targets), along with the evaluation of various, previously determined competences of civil servants (Rabrenović, Matijević, 2011:515-528). The interest in performance appraisal can be attributed to the acclaimed increase of motivation, although there is still a debate about how motivation of public sector employees *versus* those in the private sector, can be improved.

COMPARATIVE PERFORMANCE APPRAISAL SYSTEMS FOR CIVIL SERVANTS

Considering the particularities of national administrative systems, there is no single appraisal model generally accepted to measure the performance of civil servants. It is unrealistic to aim for a perfect approach to assessment. Which system will be used to monitor the performance depends primarily on the characteristics of the civil service system and the goal the assessment system should achieve.

The most recent tendencies point to the increasing importance of performance evaluation, which is based on achievement of measurable objectives, i.e. performance targets. Some countries report a strong link between individual objectives and measurable organisational objectives, with an emphasis on personal responsibility of civil servants in accordance with performance outcomes, which particularly applies to managerial positions as well. Today, comparative civil service systems most commonly use a combination of performance appraisal based on specified criteria and the one based on agreement on work objectives to be achieved by civil servants.

In traditional systems, performance appraisal is based on the assessment of the selected pre-determined criteria, which usually includes various competences, and can be mandatory or optional. The competences may comprise: knowledge, skills, behaviours, personality traits. This model allows the use of widely set effectiveness criteria and is based on various competencies required for the performance of duties of the specific job.

The advantage of this model is the fact that standardised performance appraisal procedures based on predetermined criteria are more efficient and easier to use than those based

on work objectives, the agreeing on which is a complex and time-consuming process. Also, comparing employees' performances is easier through a standardised system of uniform criteria than the one basing the assessment on individually set objectives for employees.

In recent years, the main criticism on account of these systems has been that assessments often result from subjective judgments and that there is a tendency to award high ratings for the sake of maintaining the work atmosphere. Using uniform /standardised criteria has come to be seen as a burdensome formality and a routine task. In time, the majority of these systems started to consistently relate performance appraisal to career development, promotion and rewarding, with managers showing a growing interest in conducting assessments more professionally. For example, Lithuania considers the following criteria in performance appraisals: quantity of work, quality of work, complexity of work, individual's ability to use professional knowledge and skills, and communication and cooperation skills. Appraisal results affect the advancement to a higher rank, and therefore the pay level of civil servants. Moreover, this system has a special assessment regime for managers, including state secretaries. The evaluation of their respective performances is based on the review of the implementation of institutional strategic goals, management and leadership. This model has been developed in several civil service systems.

In Croatia, the assessment procedure involves three stages:

a) Task planning, as an annual process involving a dialogue (interview) at the beginning of the year aimed at identifying tasks and goals for the next year;

b) Work and performance control, whereby the superior continuously monitors the work and performance of the civil servant over the entire year and provides ongoing support and advice;

c) Assessment of work and performance over the evaluation year, whereby a dialogue is led with the servant on the progress in meeting objectives, the overall rating is presented and new objectives and tasks for the next year defined, as well as needs for professional development.

Criteria for assessment include: work results (quality of work, meeting of deadlines, observance of work duties, etc.) and behaviour of civil servants. General criteria are: effectiveness in performing work assignments, punctuality, accuracy and reliability, meeting of deadlines and efficiency. Specific criteria apply depending on the jobs to which the civil servant is assigned. They include: innovation, creativity, expression in writing, oral expression, communication skills, and teamwork. Furthermore, additional criteria may also apply – use of specific knowledge, abilities and skills required for performing job related duties.

Another aspect of the assessment is personal behaviour, which is evaluated using the following criteria: attitude to work (motivation), attitude to citizens, attitude to superior officers, attitude to associates, respect for working hours, attendance at professional development trainings, attitude to professional development, and in respect of managing officers – attitude to civil servants managed. When suggesting ratings, the account is also taken of the respect for the official duty.

Ratings assigned to civil servants are: 'unsatisfactory', 'satisfactory', 'successful', 'excellent' and 'outstanding', and those for public employees: 'unsatisfactory', 'satisfactory', 'successful' and 'excellent'. Additionally, when deciding on the final rating, all other duties that the servant has actually performed in addition to the regular ones should also be taken into account.

An increasing number of European countries are introducing reforms to the system of performance appraisal which is based solely on the assessment of agreed work objectives i.e. performance targets. The advantage of this model is that involving civil servants in the formulation of work objectives reinforces their motivation and commitment to goal achievement.

By basing the assessment on specific work objectives, errors are avoided that otherwise may occur when using employee personality related criteria. This approach results in a less formalised appraisal procedure, because the number of criteria used becomes fewer.

In public administration, however, work objectives are often non-measurable, which implies that the application of this principle also has disadvantages in that identifying work objectives is not a simple process. On the other hand, daily workload makes it impossible to increase focus on goal setting and performance monitoring.

In these systems, individual work objectives are more or less related to organisational objectives and integrated into the goal hierarchy. Generally, individual work objectives are linked to those of organisational units and the public authority as a whole, and the public authority's objectives to political, legal and financial framework.

In the UK, performance appraisal is conducted on an annual basis, and only in some cases, quarterly, the so-called 'performance monitoring' *('monitoring-oriented' appraisals)* is carried out. The key role is played by the immediate manager, but there is also space for *self-assessment*. Typical self-assessment process involves a combination of these elements. Common bases for assessment are goal agreements. Since we speak of the position-based system, decentralised human resources management is practiced in this segment as well, and each ministry, agency and other public authority may develop its own performance appraisal system. Specific sets of professional competencies can be identified under the *competency framework* that distinguishes between skills, knowledge and abilities (problem-solving and decision-making ability, general knowledge, ability to lead, encourage and develop others, communication, cooperation and collaboration, etc.). If, during the assessment procedure, the civil servant disagrees with the rating received, he/she can request an interview with the appraiser. If the appraiser still holds to his/her judgment, a civil servant can apply for a legal remedy.

In Estonia, the system of annual progress review interviews with civil servants has been in operation since 1996. These interviews, led by supervising managers, ensure a 'softer' approach to pursuing personal policy, placing emphasis on receiving feedback and personal development of employees. Interviews may result in promotion or reward proposals. They have been recognised as the key factor of increasing motivation and effectiveness.

In the French system, the assessment procedure involves a mandatory interview between the immediate superior and civil servants, and the main criteria used to assess performance include: professionalism and technical knowledge, interest in professional training and development, organisational abilities, methods of work, ability to coordinate teams, decision-making ability, personal qualities and good work relationships. Ratings are based on annual evaluation interviews between the employee and the immediate manager. Performance and the results achieved are compared against a set of agreed objectives.

In Finland, civil servants in managerial positions are subjected to a mandatory interview held every year to assess their accomplishments relative to predetermined work objectives. Large deviations provide basis for taking certain actions – from warning the respective civil servant to his/her dismissal or a 'ban' on promotion.

Performance appraisal in Portugal is based on the following elements: 1.individual's contribution to the job, evaluated on the basis of performance outcomes; behavioural skills in the sense of measuring individual characteristics using success levels; personal attitudes, endeavours, and commitment. Assessments are conducted annually, according to the specified schedule. The system includes the method of self-assessment. The steps used are as follows: 1. self-assessment; 2. pre-assessment by line manager; 3. assessment reconciliation and control by the Appraisal Coordination Council; 4. evaluation interview; 5. results assessment by top manager.

In Albania, the performance of civil servants is appraised annually, only on the basis of the work objectives set at the beginning of the year and the results obtained. There are four performance appraisal rating categories: a) very good, b) good, c) satisfactory, and d) non-satisfactory.[2] The senior managerial staff is appraised by the National Selection Committee.[3]

In Bosnia and Herzegovina, all levels of government carry out performance appraisal based on the objectives set at the beginning of the year and on the basis of demonstrated competences (such as, for example, independence, creativity, adaptability, etc.).[4] At the BiH state level and in the Republic of Srpska, civil servants' performance is appraised once every six months, while in the Federation of BiH and Brcko district, it is appraised annually. There are four performance appraisal rating categories: a) very good, b) good, c) satisfactory, and d) non-satisfactory. Appraisal of managerial civil servants is performed in the same manner as appraisal of other civil servants.

In Macedonia, civil servants performance appraisal criteria are established by the Law on Administrative Civil Servants.[5] They include: quality, work efficiency and effectiveness; observance of deadlines and level of accomplishment of established working objectives and tasks; level of involvement and dedication to work; contribution to realisation of the institution's strategic plan, realisation of the individual plan of professional advancement, and actual behaviour. The performance appraisal is carried out once a year, at the latest, by December 1 for the current year; semi-annual interviews (by May 31 of the current year at the latest) are also mandatory. The appraisers can grade the personnel on a scale from one to five, while the overall annual grade is descriptive (A, B, C, G and D). Interestingly, in Macedonia, unlike the other countries in the region, the grading is done not only by the employee's superior but also by his/her associates and persons outside the institution. The grade given by the superior amounts to 65% of the overall grade, while the remaining 35% is comprised by the average grade of the other four administrative servants with whom the appraised employee cooperates at work, and by two persons who are not employed at the institution concerned but with whom the civil servant cooperates[6].

In Montenegro, performance appraisal criteria are as follows: accomplished work results, independence and creativity in performing duties, quality of cooperation with clients and associates at work; quality of work organisation of conducting affairs, as well as other merits, skills, and qualities related to how work is carried out.[7] Civil servants' performance is appraised annually, at the latest, by 31st of January for the previous year.[8] Performance appraisal criteria for senior managerial positions are as follow: 1) work organisation of the organisational unit or sphere; 2) management quality; 3) level of accomplished relations and coopera-

2 Article 62, paragraph 2, of the Law on Civil Servants of Albania, Nos. 152/2013 and 178/2014.
3 Article 62, paragraph 3 of the Law on Civil Servants of Albania, Nos. 152/2013 and 178/2014.
4 The Law on Civil Servants in the Institutions of BiH, *Official Gazette of the BiH*, Nos. 19/02, 35/03, 4/04, 17/04, 26/04, 37/04, 48/05, 2/06, 32/07, 43/09, 8/10, 40/12, 93/17; Law on Civil Servants in the FBiH, *Official Gazette of the FBiH*, Nos. 29/03; 23/04; 39/04; 54/04; 67/05; 08/06; 04/12, 99/15; Constitutional Court Decision of 28 June 2016; Law on Civil Servants of the RS, *Official Gazette of the RS*, Nos. 79/2005, 81/2005 – amended, 83/2005 – amended, 64/2007, 67/2007 - amended, 116/2008, 104/2009, 99/2014, 57/16
5 The Law on Administrative Servants – consolidated text, *Official Gazette of RM*, No. 142 of August 1, 2016. Administrative servants are persons who carry out administrative jobs both in administrative bodies and in local self-government bodies, and in public services such as agencies, funds, public institutions on local and republican level. See Article 3 of the Law on Administrative Servants.
6 Articles 65 and 67 of the Macedonian Law on Administrative Servants. If the civil servant does not come into contact with persons outside the institution at which he/she works, other appraisers are administrative servants of any level.
7 Article 108 of the Law on Civil Servants and Employees of Montenegro, *Official Gazette of Montenegro*, Nos. 39/11, 50/11, 66/12, 34/14, 53/14 and 16/16.
8 Article 109, paragraph 2 of the Law on Civil Servants and Employees of Montenegro.

tion with citizens, public authorities and other subjects, non-governmental organisations and media 4) other merits and skills, as well as quality of obtained results.[9]

The effective implementation of performance appraisal is influenced by a number of internal and external factors. There is neither best appraisal model for civil servants nor best performance management system – each system has its advantages and disadvantages, and in most cases they can be combined.

MAIN TRENDS IN MODERN PERFROMANCE APPRAISAL SYSTEMS

Given the particularities of national civil service systems, it is often impossible and not appropriate or advisable to take over the entire performance appraisal system of another country. Therefore, it is useful to point to the main trends in the process of civil servants evaluation that can also provide a basis/guideline for further development of the system in Serbia. Several notable trends include: agreeing civil servants' professional objectives as a basis for performance appraisal; linking civil servants' individual objectives and organisational objectives; improving performance appraisal objectivity and simplifying rating procedure; linking performance appraisal results to other human resources management functions.

The agreement on work objectives between the civil servant and the superior is an agreement concerning the expected work results. The advantages of this approach are that involvement of civil servants in the formulation of work objectives enhances their motivation and commitment to goal attainment, encourages independence at work, identification with tasks, orientation to results, transparency, participation in establishing priorities and the alignment of job requirements with ongoing organisational needs.

Moreover, the agreement on work objectives indicates a gradual change in the hierarchical relationship between the civil servant and his/her superior, as the objectives are set jointly by the manager and the subordinate. In this context, the shift is also taking place in the concept of public administration from hierarchical toward the organisational model of *management by objectives*.

Setting work objectives in public administration is not a simple task, because working beyond job description is not a rare practice and responsibilities often depend on political circumstances. In practice, employees are often not included in the goal-setting process, and the agreement evolves into a work order.

Another factor influencing the efficient introduction of work objectives as a basis for performance appraisal is the administrative culture (hierarchical managerial structure, adherence to prescribed procedures, etc.), as, for instance, failure to meet an agreed objective can provide grounds for a more severe sanction (for instance, in the UK).

Individual employee performances determine the operational success of public administration authorities and organisations. For public authorities to accomplish strategic goals and annual business plans, organisational objectives must be linked to civil servants' individual work objectives agreed in a dialogue between managers and civil servants. If predetermined objectives are modified, organisational and individual objectives should be revised accordingly.

Anglo-Saxon countries have been more successful in aligning individual and organisational objectives due to their being dominated by the principle of *'new public management'*

9 Article 111 of the Law on Civil Servants and Employees of Montenegro.

granting managers the freedom to manage but making formal rules more flexible compared to continental European countries. Nevertheless, the latter systems also made progress in linking organisational and individual performances, particularly France and Bulgaria.

The most recent tendencies of improving the performance appraisal system move towards the reduced number of rating scales. While the past practice saw a widespread use of more complex assessment procedures, current practice favours a more simplified approach to assessment, with a small number of numerical scale categories ranging from 3 to up to 5. Comparative experience has shown that distinguishing between two situations in civil servants' performance, such as "excellent" or "poor performance", is easier than engaging in a more detailed assessment of performance nuances, because the emphasis is on the very process of assessment rather than on the main purpose of improving the servant's performance (Vukašinović Radojičić, 2015:168).

In comparative performance appraisal systems, one of the most commonly used mechanisms to unify the assessment practice is the fixing of *quotas*, or the proportion of civil servants who can receive a certain rating (for instance, only 5-10% of servants may be awarded the highest rating, or only 20-30% average rating, etc.) (OECD, 2006). In other words, it means determining the expected ratings distribution whereby smaller numbers of civil servants demonstrate outstanding performance; larger numbers demonstrate satisfactory performance, and a smaller number unsatisfactory performance. Quotas may be legally binding or non-binding, depending on whether the managers must stick to the letter of the law or have certain flexibility in using them.

Comparative systems use another mechanism to make the performance appraisal objective – specifically, the *360-degree* methodology, which brings more objectivity to the assessment process, because it involves a wider range of appraisers, each in a different relationship with the civil servant. It is applied as a system where assessment is directed not only top-down, or from manager to employee, but also from employee to manager and other co-workers. This system is considered as a rather complex instrument requiring a healthy basis of a simple civil servant appraisal system established before more complex mechanisms can be introduced. It is not fully appropriate for environments with underdeveloped performance appraisal system, which is why simpler assessment bases must be introduced first. On the other hand, the experience confirms that with informational support provided to this method the procedure can be efficient and cost-effective.

Method of self-assessment is a procedure by which employees evaluate their own performance at work. Self-assessment is usually part of the performance appraisal system – it does not appear as a separate appraisal method. It can constitute one source of information relevant to performance management, in that the manager gains insight into employee's perception of own work performance, but cannot rely on self-assessment as a valid source. Participation of employees in the appraisal process improves motivation. Also, it serves as the starting point for establishing high-quality communication between employees and managers.

Assessment of a group of employees or team assessment is another method used to evaluate performance in public administration. Introduction of team assessment refers to all team members involved in carrying out a specific task or duty. Its application contributes to overcoming the issues of subjectivity, and reinforces team work and collegiality, which is the key to the successful functioning of public administration. Some countries (Germany, Finland, and UK) also have systems in place for rewarding groups of civil servants for a well performed task, overcoming thus the issues associated with assessment-based rewarding of individuals and reinforcing team work in public administration.

PERFORMANCE APPRAISAL SYSTEM IN SERBIA

Over the past decade, Serbian civil service system has been subject to continuous changes of legislation and administrative practices. The performance appraisal was introduced for the first time by the Civil Service Law of 2005, which has been amended several times in order to meet the needs of the Serbian civil service system.

One of the key standards against which the Serbian performance appraisal system is assessed are the SIGMA Principles of Public Administration. Those principles serve as a *soft-acquie* in the area of public administration for the EU (potential) candidate states. The Principles of Public Administration represent an example of a change of the EU approach to the accession requirements. Unlike in the early years of accession, when the Commission was insisting merely upon adoption of certain legislation and establishment of institutions (so-called "check-box" approach), there is a strong orientation towards assessing implementation of the legal framework and its effectiveness in practice. This appears to come from a wider understanding that an attempt to change the society and civil service in particular through laws has obvious limits in the 21st century (Nicolaidis, Kleinfield, 2012: 47).

In order to be able to monitor the progress in achieving the benchmarks set in the Principles, SIGMA has also recently developed a document entitled "Methodological Framework", which provides a comprehensive monitoring framework for assessing the state of a public administration against each Principle set out in the Principles of Public Administration.[10] The Framework includes a set of indicators, which attempt to define preconditions for a good public administration (good laws, policies, structures and procedures) with the special emphasis on actual implementation of legislation and its effects and outcomes in practice.

SIGMA Principles envisage four key requirements that need to be met in relation to performance appraisal. These requirements are as follows: 1) the principles of performance appraisal are established in law to ensure the coherence of the whole public service; 2) the detailed provisions are established in secondary legislation; 3) the performance appraisal of public servants is carried out regularly; 4) the public servants have the right to appeal unfair performance appraisal decisions (SIGMA, 2014:53). These requirements are assessed individually and further reviewed based on three indicators: 1) professionalism of performance assessments, 2) linkage between performance appraisals and measures designed to enhance professional achievement and 3) right of civil servants to appeal against performance appraisal decisions (SIGMA, 2016:103-105).

Serbian performance appraisal rules are thoroughly regulated by the existing civil service legislation, which is generally in line with the SIGMA Principles of Public Administration. The principles of performance appraisal are established in the Civil Service Law, while detailed provisions are established by the Decree on Appraisal of Civil Servants.[11] Performance appraisal is carried out regularly, on annual basis, by the end of February for the past calendar year.[12] Performance is assessed against individual objectives, which are determined at the beginning of the calendar year, during the conversation between a civil servant and his/her manager. Performance appraisal is also based on assessment of competencies, such as independence, creativity, quality of cooperation etc., which are the same for all civil servants.[13]The results of performance appraisal have to be acknowledged in writing in a special performance appraisal form and interviews between civil servants and their managers are compulsory.[14]

10 SIGMA, *Methodological Framework for the Principles of Public Administration*, OECD publishing, Paris, 2017.
11 Decree on Performance Appraisal, Official Gazette of RS, Nos. 11/2006 and 109/2009.
12 Article 3 of the Decree on Performance Appraisal.
13 Articles 12-17 of the Decree on Performance Appraisal.
14 Articles 24-30 of the Decree on Performance Appraisal.

In spite of the solid legal framework, however, performance appraisal has proved to be ineffective in practice, due to a consistent problem with the inflation of the highest marks. Since the introduction of the system in 2006, about 85% of all civil servants have been constantly given the two highest marks - "stands out" and "exceptional". [15] The appraisals conducted in 2016 for performance in 2015 resulted in almost 90% of civil servants obtaining the highest two grades.[16] For this reason, the indicator value on professionalism of performance assessment assigned by SIGMA during the 2017 appraisal has not been high.[17] The established situation clearly indicates that the current appraisal method is not reliable and effective.

The reasons for ineffectiveness of performance appraisal rules are multiple. The appraisal is often considered as a merely bureaucratic procedure and unnecessary "burden" for managers (Bajic, Jovetic, *et.al.,* 2016: 44). Another key issues a difficulty with defining the work objectives, as one of the key appraisal criteria. An additionally complicating factor is that the job descriptions were initially poorly done, so often one cannot perceive what an employee is supposed to do. This leads to a generalised definition of objectives, which are not sufficiently measurable. In addition, the current grading does not appear suitable for civil service needs. Both managers and civil servants associate five-point scale with the school marks. This provides the inertia that the grade 3, "good" is not considered as the mark of a standard and expected performance, and therefore many managers avoid it. Employees who work standardly well, in accordance with the expectations for that job, are appraised by managers by grade 4 - "stands out" instead by grade 3 - "good". The further objection is that managers as appraisers, who have the main role in performance appraisal, do not have sufficient information on the civil servants' work and are thus unable to objectively assess it, which often results in a bad working environment and adversely affects the morale of the entire organisation. In order to remedy this situation, managers then resort to awarding high level grades to majority of their subordinates, which subsequently leads to inflation of grades.

Finally, one of the weaknesses of the current performance appraisal system is inefficient link between performance appraisals and other human resource management functions, such as promotion, mobility and training of civil servants. In addition, it is necessary to identify, through performance appraisal interview, whether the trainings the civil servant has attended have had an effect on his or her work or not. Although the strategic policy documents and Civil Service Law do provide a clear link between performance appraisal and other human resource management functions, the connection between these systems still does not operate effectively.

CONCLUDING REMARKS

Over the past several decades, performance appraisal has been viewed as one of the most widespread methods for improvement of civil servants' performance. It is one of the essential human resource management functions, providing grounds for human resource decisions on career planning, training, rewards, mobility, or termination of employment. Performance appraisal can additionally show the training needs related to the achievement of concrete career aspirations, which is very important if there is a desire to keep the best people in the civil service.

Regarding particularities of national administrative systems, there is no single appraisal model generally accepted to measure the performance of civil servants. Which system will

15 SIGMA, *Monitoring report: The Principles of Public Administration, Serbia, 2017*, *op. cit.* note 24, p. 82.
16 *Ibid.*
17 *Ibid,* p. 83.

be used depends primarily on the characteristics of the civil service system and the goal the assessment system should achieve.

Modern trends in civil service performance appraisal include the following elements: agreeing civil servants' professional objectives (performance targets) as a basis for performance appraisal; linking civil servants' individual objectives and organisational objectives; improving performance appraisal objectivity and simplifying rating procedure; linking performance appraisal results to other human resources management functions and reducing the number of rating scales.

The introduction of these elements is not an easy task, especially setting measurable work objectives-performance targets in public administration, since it is not easy to measure its tasks and individual achievements. Another factor influencing the efficient introduction of work objectives as a basis for performance appraisal is the administrative culture. Rigid hierarchical structure and strong adherence to prescribed rules and procedures, which characterises continental Europe administrative systems, may not provide a fertile ground for measuring performance and may be more difficult to internalise on the European continent than in the Anglo-Saxon context.

Some comparative civil servants systems use certain "innovative" performance appraisal methodologies such as the *360-degree* methodology, self-assessment or group/team assessment. These methodologies should brings about more objectivity to the assessment process, but may be more difficult to implement, especially in the civil service systems which are at the early stage of development and where organisational performance management framework is not well established. For example, as pointed out earlier in the text, Macedonia has recently introduced elements of the 360 degree methodology, but its effectiveness in practice is yet to be seen.

Following the EU accession requirements, the Serbian civil service system has been continuously upgraded through changes of legislation and enhancing administrative practice. Despite all invested efforts, there are still significant challenges for the establishment of a merit-based civil service system and an effective performance appraisal system in practice. This may be attributed to a complex political environment, which does not provide a solid ground for the implementation and internalization of the existing rules in practice. The future efforts towards a reform need to be focused on strengthening the current elements of performance appraisal and linking them to other HRM functions, such as civil servants' professional development. A stronger relationship should be established between performance appraisal and training and promotion, thereby using performance appraisal results as a key source in any training needs assessment.

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EVALUATION OF TESTS FOR THE ASSESSMENT OF POLICE OFFICERS PHYSICAL ABILITIES[1]

Radivoje Janković, PhD[2]
Nenad Koropanovski, PhD
Raša Dimitrijević, PhD
University of Criminal Investigation and Police Studies, Belgrade

Abstract: Physical abilities play an important role in the performance of police work and are one of the main preconditions for the effectiveness of critical incidents resolving. Therefore, one of the methods for determining the police officers working skills is checking the basic physical abilities (BPA) and specific physical abilities (SPA) development levels. The problem in this paper was the evaluation of the BPA tests used by the police organizations and the Test for assessment of specific physical abilities of police officers (OC_{SAPO1}). The aim of the study is to determine the battery of tests that describes the observed space from the aspect of professional orientation. The sample consisted of 99 male examinees (age 28.1 ± 6.1 years) divided into four groups: 30 ACPS students, 28 members of the General Police Unit, 17 members of the Special Anti-terrorist Unit and 22 subjects of control group. Eighteen BPA variables were used, as well as the efficiency of a job related fitness test OC_{SAPO1} with metabolic and functional physical activity indicators. Based on the descriptive indicators, factor analysis has determined the mutual structure and structure of quantitative relations between all BPA, SPA and metabolic variables. The analysis of communality determined that extrusion values in all variables ranged from 0.456 to 0.862. The obtained results cumulatively explained 67.51% of the variability, and four main groups of factors are distinguished. The first group is defined by the specific physical abilities of police officers, the second by maximum muscular forces, the third by variables of the rate of force development and the fourth by physiological variables. Based on the analysis of the obtained results average values, it was found that 54.86% of respondents correspond to the group they belong to. In practice, in selection and control of the BPA level, the battery of tests are used for the assessment of the police officers complete motor space. Finally, the results of this study indicate that the tests OC_{SAPO1}, Long jump and the maximum number of pull-ups, mostly discriminate efficiency in motor space of police officers.

Key words: police, obstacle course, physical abilities

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2 radivoje.jankovic@kpa.edu.rs

INTRODUCTION

Police officers interventions are performed in complex circumstances and can range from verbal warning to the use of different levels of physical force (Dopsaj et al., 2012). Resolving certain tasks in a legitimate and efficient manner, among others, implies an adequate level of development of basic physical abilities (BPA) and specific physical abilities (SPA) (Vučković et al., 2011[a]). Physical abilities are particularly important during interventions in critical situations. More concrete, these situations involve assisting people in natural disasters, traffic accidents and overcoming the individuals who commit assault or resist (Anderson et al., 2001). For these reasons, assessment of the BPA and SPA level development is an integral part of the selection, education and determination of the working ability of police officers, with the method of testing and norms defined in relation to gender, age and professional specialization (Janković & Dimitrijević, 2012).

In previous studies of physical abilities in the police officers population, muscular strength and general aerobic endurance were singled out as the most important abilities in selection processes, physical abilities levels assessment and successful performance of police work (Nutting and Maxwell, 1992; Bonneau and Brown, 1995; Anderson et al., 2001). Also, it was found that a certain level of manifestation of the maximum isometric force of the back and leg extensors and the maximum isometric force of the hand finger flexors, may have significance for the successful and efficient execution of police duties (Blagojevic, 1996; Dopsaj & Vuckovic, 2006). Since the repetitive power is the muscular ability to realize successive fast and powerful movements during the creatine phosphate energy phase, which are carried out in the zone of maximum and submaximal intensity, it is one of the properties that statistically significant describe the specific motor space and manifests itself in a large number of police tasks (Arvey et al., 1992; Dopsay et al., 2002). The importance of speed power in police work is reflected in the fact that it is expressed in the area of specific physical abilities such as punches, throws, levers and blocks or, in the area which represents a self-defense techniques, in handling and use of the official weapons (Blagojević et al., 2006; Vučković et al., 2011[b]). On the other hand, general aerobic endurance as a physical ability, may be considered as one of the health-related physical fitness most important component (Kayihan et al., 2014). During the working career of police officers, it was noticed that with a reduction in the time spent on physical activities, the risk of cardiovascular disease increases, as well as a significant increase in body weight (Sörensen et al., 2000). Also, police officers with better general aerobic abilities in situations of specific fatigue, recovers more quickly from stress, or have greater tolerance to stress (Blagojević et al., 2006).

The level of physical abilities development should be also considered in the context of specific tasks that are characteristic for the different police unit organizations. In this sense, the battery test should be designed to suit the real situations that are more likely to be met by police officers (Anderson et al., 2001; Lonsway, 2003). This accomplishes one of the basic goals – selection of the individuals with adequate physical abilities for work in the police (Dopsaj et al., 2007). Previous studies have shown that batteries containing tests for assessing different types of strength and aerobic endurance are justified in the selection of personnel to work in the police, and that BPA monitoring in this area represents a good prediction for the successful performance of police duties (Arvey et al., 1992; Bonneau & Brown, 1995; Boyce et al., 2008). In addition to a battery of tests for BPA assessment, for more specific indicators of the professional ability of an individual, job-related fitness test are used (Strating et al., 2010; Janković et al., 2015). These tests aim to assess the level of specific fitness and correspond to situational conditions and efforts made during professional tasks (Anderson et al., 2001; Dopsaj & Janković, 2014). This means that the test simulates, or contains, the most significant areas of the motor space

in solving critical situations (Bonneau & Brown, 1995; Lonsway, 2003). Studies have shown that in the majority of cases there are: running, jumping, crawling, maintaining balance, pulling, climbing, lifting, carrying or pulling loads, pushing and fighting. It has also been found that these tasks take place in the duration of 60 to 120 seconds in the submaximum or maximum intensity zone (Anderson et al., 2001; Jackson & Wilson, 2013; Dopsaj & Janković, 2014).

Based on the above, it is evident that for determining the physical fitness of police officers, a complete motor space from the aspect of BPA and SPA is observed, for which different batteries of tests are used (Wilmore & Davis, 1979; Greenberg & Berger, 1983; Bonneau & Brown, 1995; Lonsway, 2003; Strating et al., 2010; Jackson & Wilson, 2013). Improving the quality of testing of basic and specific physical abilities may be obtained by the measurement characteristics of instruments, new measurement procedures, normative parameters and finally, with their professional implementation (Fajnman, 1999; Strating et al., 2010). The problem in this study is the evaluation of the tests used for assessing police officers BPA and the job-related fitness test to assess police officers SPA (OC_{SAPO1}). The aim of study is to establish a battery of tests that stands out as the dominant representative of the observed area in terms of professional orientation.

RESEARCH METHODS

THE SAMPLE

The study involved a total of 99 respondents with an average age of 28.1 ± 6.1 years, which were divided into four subsamples. The first group consisted of 30 male students of the third studying year at the Academy of Criminalistic and Police Studies (ACPS_m), aged 22 ± 1.1 years, where all respondents underwent education in the course of the Specialized Physical Education. The second group consisted of 28 members of the General Police Unit (GPU m), aged 32.4 ± 4.5 years, with 8.7 ± 4.6 years of average working experience in the Ministry of Interior and they all have passed educational treatment for police work. The third group consisted of 19 members of the Special Anti-terrorist Unit (SAU_m), aged 33.1 ± 4.6 years. The fourth group included 22 respondents of the control group (CON_m), which are in recreational level engaged in the martial arts (aikido, karate and the Russian systema). The average age in CON_m was 26.5 ± 4.9 years, the average sports experience was 3.4 ± 1.3 years and the average weekly training range was 2.9 ± 0.7 hours. All respondents have undergone the necessary education course to solve specific motor assignments that are performed within OC_{SAPO1} in the extent of 9 instructional training school lessons.

THE VARIABLES SAMPLE

Eighteen BPA variables were used, as well as the efficiency of a job related fitness test OC_{SAPO1} with metabolic and functional physical activity indicators. The variables of BPA were measured by standard procedures (Dopsaj et al., 2010), and values were established for: the maximum isometric force of the left hand finger flexors (FmaxLH); the rate of force development of the left hand finger flexors ($_{RFD}$LH); the maximum isometric force of the right hand finger flexors (FmaxRH); the rate of force development of the right hand finger flexors ($_{RFD}$RH); the maximum isometric force of the back extensors (FmaxB); the rate of force development of the back extensors ($_{RFD}$B); the maximum isometric force of the legs extensors (FmaxL); the rate of force development of the legs extensors ($_{RFD}$L); the Abalac test (ABL); the Long jump (LJ); the maximum number of sit-ups with trunk rotation performed in 30 seconds (SU); the

maximum number of pull-ups (PULL); the time required for the 15 push-ups (PUSH); 30 meters maximum speed running with a start from the ground (30m); a 300 yards shuttle run test (SRT300); the Cooper test (CT); the Illinois test agility (IAtest).

The specific physical abilities are evaluated by using the job related fitness test: the obstacle course for the assessment of police officers specific skills (OC_{SAPO1}). The OC_{SAPO1} was realized on a space with the surface of 25x15 meters (Figure 1). Prior to the test, OC_{SAPO1} was introduced (each part of the test was explained in detail). Then the subjects practiced every course task in the period of two school classes (90 minutes), and completed the OC_{SAPO1} with high intensity soon after. After a break lasting at least 24 hours, the subjects were tested for the first time (Test 1) preceded by a 10 minute warm up. The Test 1 recovery consisted of 15 minute low intensity run and walk, as well as of 5 minute stretching. After 48 hours, namely the time period which enabled a full physical recovery, the subjects repeated the testing where the following variables were measured: the time required for the realization of OC_{SAPO1} (t_{SAPO1}), the concentration of lactate in capillary blood in the fifth minute of the recovery (La_5) and the maximum heart rate (HR_{max}). The obstacle course of police officers specific skills is structured on the basis of motor assignments that hypothetically simulate situations and tasks for which, in space-time frame, police officers must be practically trained (Figure 1). In this way, each individual comes into the stressful situations of growing physical fatigue, in which all technical-tactical movements must be perform correctly (Dopsaj & Janković, 2014; Jankovic et al., 2014). OC_{SAPO1} included the following tasks:

A. Starting on sound signal,

B. 20m sprint in a straight line,

C. Stopping, taking cover and reaching for the firearm,

D. After threat assessment, while holding the gun in firing position, subject leaves the cover from the left side, passes the cones from the outer side and crawls underneath the rope set at 55 cm height in marked spots. Distance between the cones is 250 cm,

E. Stopping and taking cover, changing the magazine and putting the firearm back on the duty belt,

F. Three part task: 1. Crossing over 110 cm high obstacle; 2. crawling beneath 55cm obstacle (F'); 3. Crossing over 110 cm high obstacle. The distance between the obstacles being 250 cm,

G. Approaching the focus pad (held by an assistant), throwing 4 punches and 2 kicks with maximal speed and intensity,

H. Climbing the 70 cm high platform and crossing the 120 cm high and 500 cm long balance beam.

I. Leaping on the math with a forward roll,

J. Approaching the punching bag, taking baton, hitting the bag 4 times with maximal efficiency and putting the baton back on the duty belt,

K. Reaching the mats and defending against predetermined attack, overcoming the attacker using SPA techniques, controlling and handcuffing him,

L. 15 m maximal speed running, with changing of direction to the dummy (sack),

M. Reaching the dummy (sack) and lifting it (men) or preparing for dragging the dummy (women),

N. Carrying the dummy or sack (men) or dragging it (women) for 10 m from the starting position to the marked point,

O. Safely placing the dummy (sack) on the ground,

P. Running through the finish line.

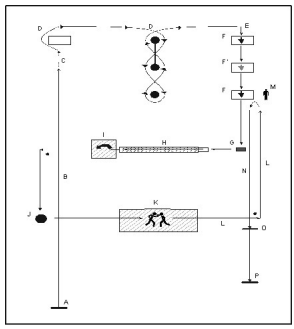


Figure 1. Design of the OC_{SAPO1}

The time required for the realization of OC_{SAPO1} was measured by Physical Abilities Testing computer system - PAT 02 and is expressed in seconds with two decimals (Dopsaj & Janković, 2014). PAT 02 consists of a measuring device, a set of required cables, application software and running sensors. The respondent passes through the first sensor and activate the chronometer, and by passing through the sensor at the end of the polygon switches off the time measurement. Capillary blood sampling was performed by the *Unistik 3 Comfort (Owen Mumford, Ltd., U.K.)* disposable lancet. Lactate concentration was determined with the portable lactate analyzer of the latest generation (*Lactate Plus NOVA biomedical, USA*), by biosensor method with lactate oxidase *(Lactate Methodology - Lactate oxidase biosensor)* (Hart et al., 2013). The concentration of lactate in capillary blood in the fifth minute of the recovery (La_5) is expressed in mill moles per litre (mmol/L), as a measure of metabolic acidosis. The maximum heart rate (HR_{max}) was measured by a mobile heart rate monitor SIGMA PC 15 (Sigma Electro GmbH, Germany).

STATISTICAL DATA PROCESSING METHODS

The results are presented through the basic indicators of descriptive statistics. In a further results processing by the factor analysis, the mutual structure and structure of quantitative relationships between all general and specific physical and metabolic variables were determined (Hair et al., 1998). For all statistical analysis software program IBM SPSS Statistics 22, ID: 729327 (premium faculty pack) was used.

RESULTS

Table 1 shows descriptive statistics results of the BPA and the measured OC_{SAPO1} parameters.

Table 1. *Descriptive statistic results for all groups*

Variables	ACPS_m		GPU_m		SAU_m		CON_m	
	MEAN	SD	MEAN	SD	MEAN	SD	MEAN	SD
FmaxLH (DaN)	53.47	6.94	44.82	5.85	51.85	6.76	49.18	9.15
$_{RFD}$LH (DaN/s)	53.16	21.18	42.29	27.00	50.37	18.77	43.60	21.07
F_{max}RH (DaN)	56.83	6.85	51.04	5.39	54.36	7.20	52.05	8.53

$_{RFD}$RH (DaN/s)	54.37	19.33	41.46	21.54	52.34	22.15	44.60	21.29
F_{max}B (DaN)	167.86	18.11	148.06	18.28	168.24	19.00	155.47	15.17
$_{RFD}$B (DaN/s)	67.64	26.54	60.62	18.05	72.17	20.51	65.82	17.75
F_{max}L (DaN)	165.58	18.12	142.48	19.83	165.72	16.59	149.96	16.46
$_{RFD}$L (DaN/s)	66.35	22.69	61.58	16.64	73.36	24.13	66.95	28.48
ABL (cm)	43.38	5.77	36.06	6.07	42.29	5.59	40.04	5.04
LJ (cm)	235.78	10.88	205.13	23.35	230.89	13.73	222.14	14.91
SU (No)	28.55	2.55	21.79	5.66	29.22	2.32	25.62	2.50
PULL (No)	15.03	5.09	4.37	5.28	19.72	5.17	9.06	5.18
PUSH (s)	11.96	1.48	15.87	3.54	11.43	0.84	12.79	2.24
30m (s)	4.51	0.15	4.88	0.20	4.52	0.15	4.70	0.22
SRT_{300} (s)	64.54	2.85	71.40	6.44	62.86	2.15	66.71	2.34
CT (m)	2602.01	220.84	2163.28	265.06	2880	229.49	2389.61	196.77
IA_{test} (s)	18.81	1.13	20.33	1.56	17.23	0.46	19.27	1.22
t_{SAPO1} (s)	87.92	6.98	94.39	11.06	76.87	7.43	90.89	8.84
La_5 (mmol/L)	12.60	2.25	12.52	2.29	11.51	1.77	11.20	2.24
HR_{max} (B/min)	187.88	5.63	183.31	6.70	174.72	8.91	182.28	8.35

The analysis of communality determined that extrusion values in all variables ranged from 0.456 to 0.862. which means that retained factors largely explain the variability in all completed tests. The obtained results cumulatively explained 67.51% of the variability, and four main groups of factors are distinguished. Table 2 shows the results of factor analysis.

Table 2. *The variables Igen scores by main components*

	Main component			
Variables	**1**	**2**	**3**	**4**
SRT_{300} (s)	-0.864	-0.211	-0.203	0.024
PULL (No)	0.830	0.510	0.261	-0.176
PUSH (s)	-0.806	-0.338	-0.126	-0.013
SU (No)	0.804	0.340	0.111	0.181
LJ (cm)	0.795	0.396	0.081	0.015
IA_{test} (s)	-0.779	-0.154	-0.373	0.340
CT (m)	0.776	0.193	0.347	-0.317
30m (s)	-0.717	-0.272	-0.175	0.194
ABL (cm)	0.717	0.361	0.006	0.105
t_{SAPO1} (s)	-0.705	-0.134	-0.305	0.003
F_{max}RH (DaN)	0.236	0.9t15	0.216	-0.005
F_{max}LH (DaN)	0.350	0.897	0.212	-0.090
F_{max}L (DaN)	0.492	0.892	0.247	0.158
F_{max}B (DaN)	0.508	0.862	0.286	0.113
$_{RFD}$LH (DaN/s)	0.190	0.452	0.739	-0.037

$_{RFD}$L (DaN/s)	0.193	0.101	0.721	0.126
$_{RFD}$LH (DaN/s)	0.124	0.367	0.688	0.064
$_{RFD}$B (DaN/s)	0.243	0.061	0.657	-0.090
HR_{max} (B/min)	-0.084	-0.014	-0.122	0.807
La_{5} (mmol/L)	0.001	0.071	0.236	0.727

DISCUSSION

The four groups of factors were identified by factor analysis. The first factor group is defined by the specific physical abilities of police officers, and besides the OC_{SAPO1} test, includes the aerobic and anaerobic ability, the repetitive power of the arms flexors and extensors, as well as the repetitive power of the abdominal flexors. This group also includes the explosive power of the legs and maximal running velocity. The common denominator of the second factor group are the values of the maximum force (F_{maxB}, F_{maxL}, F_{maxLH}, F_{maxRH}), while the third factor group includes all four measured rate of force development variables. The fourth factor group includes physiological variables: the maximum heart rate and measured concentration of lactate in capillary blood after polygon realization (Table 2).

In the research on a population of police officers (Milošević, 1985), the structure of motor characteristics was examined with a battery of tests which included 76 physical and 4 morphological tests. By the use of the factor analysis, it has been established that for successful performance of professional duties, police officers should have adequately developed physical abilities in the space of different types of muscular power (maximum, dynamic, speed and explosive), anaerobic endurance, as well as velocity and precision in performing of the self-defence techniques. In the research conducted by Blagojević (1996), it has been found that it is possible to predict the dynamics of judo-technique structuring with a high level of reliability. A factor that is defined as the general factor of judo education is distinguished. It was concluded that the efficiency of judo-technique training in police officers population depends on both morphological and physical manifest and latent variables. In the studies which investigated the formation of the battery of tests based on the analysis of *bona fide* occupational requirement, it was concluded that the battery of tests, except for the assessment of BPA should also contain the tests that simulate specific police tasks. More specifically, the traffic patrol police officers additional test should have a simulation of jumping over the highway border or fence and the arrest of a suspect who refuses to cooperate and is located in the vehicle (Wilmore & Davis, 1979). Also, on the basis of regression analysis, it was determined that the probability of success in overcoming the suspect is increased if better results are achieved on the strength tests: maximum bench press, upright rowing, leg press and hand grip (Greenberg & Berger, 1983).

Considering that the quality of the police officers professional skills depends on SPA level (e.g., self-defence techniques, use of the police baton, handling of the gun), they need to be permanently trained (Vučković et al., 2011[a]). It was found that the *Police Physical Competency Test* execution efficiency is associated with the time that a police officer used for physical activities. Also, the job related fitness tests may be used as the mean for SPA improvement, because OC_{SAPO1} practising has an educational effect (Jankovic et al., 2015). In addition, it has been shown that OC_{SAPO1} is a valid test for assessing the specific abilities of police officers in anaerobic-lactate regime (Dopsaj & Jankovic, 2014), and that there is a significant correlation between the results of the polygon with the BPA. The highest level of positive correlations

were found between OC_{SAPO1} and tests that assessed the repetitive power of the abdominal flexors, agility and anaerobic and aerobic endurance (Janković & Koropanovski, 2017).

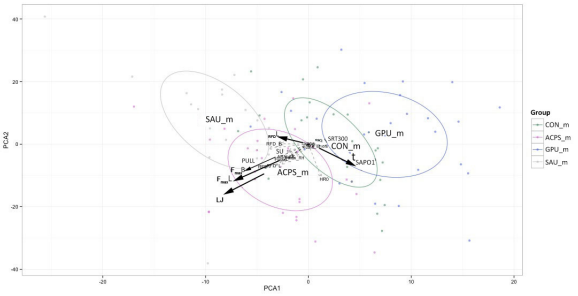


Figure 2. *Analysis of the main components with a limit in relation to group membership.*

In this study, the results of a factor analysis showed that 54.86% of the variability can be explained by belonging to a group in relation to the professional specialty. Of all the tests carried out from the motor area, the explosive power of the leg muscle extensors, or the variable LJ, proved to be the most discriminating. With the explosive power of the leg muscle extensors, the collinear are the maximum isometric force of the back and leg muscles extensors , which implies that these tests, according to the generator of physical abilities, are mutually related. The effectiveness of specific police skills polygon realization is collinear with $_{RFD}$L and best separates members of the Special Anti-terrorist Unit compared to other tested populations (Figure 2). In practice, in selection and control of the BPA level, the battery of tests are used for the assessment of the police officers complete physical abilities space. Finally, the results of this study indicate that the tests OC_{SAPO1}, Long jump and the maximum number of pull-ups, mostly discriminate efficiency in police officers physical abilities.

The most important limitation of this study lies in a fact that our sample was relatively small and ageing disperse, which should be taken into account in comparison with the other worldwide results. Another limitation refers to the lack of data on dietary and exercise habits, as well as on the morphological characteristics. Finally, the study did not evaluate the classification of the respondents relative to their respective departments, the workload levels to which they were exposed during professional engagement, or their performance efficiency.

CONCLUSION

The aim of this study was to determine the representative battery of tests that in the future period would be used for the assessment of the observed physical abilities areas. The study involved 99 respondents which were divided into four subsamples.: 30 ACPS students, 28 members of the General Police Unit, 19 members of the Special Anti-terrorist Unit and 22 respondents of the control group recreational engaged in the martial arts. Respondents were tested with eighteen variables of basic physical abilities, and for the needs of determining specific motor abilities, the job-related fitness test OC_{SAPO1} was used. The results were primarily processed by descriptive statistical analysis and then by application of the factor analysis. The results of the research have shown that it is possible to separate the tests for the assessment of police officers SPA. On the basis of factor analysis results, tests that mostly discriminate police officers SPA are: the job-related fitness test OC_{SAPO1}, the Long jump and the maximum number of pull-ups.

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LOCAL SECURITY COUNCILS AND COMMUNITY POLICING IN SERBIA - BETWEEN VISION AND REALITY[1], [2]

Danijela Spasić[3]
Ivana Radovanović
Nenad Milić
University of Criminal Investigation and Police Studies, Belgrade

Abstract: The multi-dimensional approach to understanding human and the implementation of the community policing strategy as two complementary parts of the concept of quality of life make it possible to qualitatively consider security in local communities. According to the concept of human security, institutions are obliged to provide citizens with permanent protection, instead of occasional, to act preventively, rather than reactively, whereby all relevant local community actors actively participate in deciding on issues related to their security. One way to actively involve key members of a community in improving (human) security at the local level is the formation of local security councils.

In Serbia, the first local security councils were established in 2002 as a result of the implementation of the pilot project "Police in the local community and a safe community in Serbia". Fifteen years later, there are 119 local security councils in Serbia. In addition to representatives of local self-government and representatives of other institutions (police, judiciary, social welfare centres, school institutions, health services, etc.), the representatives of civil society also participate in their work. Nevertheless, the functioning of local security councils in Serbia is still little known. There is also insufficient knowledge in which manner these bodies contribute to the improvement of human security at the local level.

Theoretical considerations in this paper are focused on the analysis of the conducted quantitative and qualitative research with the aim of reviewing the legislative, security and sociological environment in which local security councils are established and operating.

Key findings point to the necessity and significance of the decentralization of local security, the need for further development of the police in the local community, and the determination of the scope, dynamics and methodology of the work of the local advisory bodies for security.

Keywords: *local councils for security, community policing, Serbia*

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2 This paper is the result of the research on the following project: "Crime in Serbia and instruments of state response", which is carried out by the Academy of Criminalistic and Police Studies in Belgrade (2015-2019).
3 Danijela Spasić, e-mail: danijela.spasic@kpa.edu.rs

INTRODUCTIONHUMAN SECURITY IN THE LOCAL COMMUNITY

The key concept of this research is human security. Human security shares the "conceptual space" with human development, which is also centred, multidimensional and defined in the space of human choices and freedom. While human development strives to "grow with equality", human security focuses on the "decline in security" (Sen, 2000). "That's why the focus of the human security battle is directed at two fronts. The first direction refers to the security field, where victory means *freedom from fear*. The other direction refers to the economic and social front, where victory means *freedom from deprivation*. There is no provision to add to the Charter of Human Rights and Freedoms and thereby enable the Security Council to create a safe world if men and women do not have security in their homes and workplaces."[4] The syntagm "freedom of fear" was intended to point to *freedom from violence*, while the syntagm "freedom from deprivation" signified *freedom from poverty*.

In analogy to this "security mathematics", the Human Development Report from 1994 has identified its four essential characteristics:

1. Human security is of universal importance. It is important for all people, equally for rich and poor nations.

2. Human security components are interdependent.

3. Human security is easier to ensure with early prevention than with later intervention. It is less expensive to overcome these threats while they are on the rise than when they are on a descending path.

4. Human security is centred on people; it is humanly centred. It is interested in how people live and breathe in society, how much they can freely exercise their choices, how much market and social chances are available to them – whether people live in conflict or in peace.

For this reason, as the starting point, as the broadest framework of research analysis in the assessment of the state of human security is taken the community in which the individual lives (the local community), that is, to which the individual belongs. Hence **the local community** represents the contextual framework through which the real potential for emancipation of citizens can be considered in the best possible way (Đurić, 2009), through which the needs of citizens and the degree of their (non)security can realistically be assessed, and the need for prevention and response to security problems, risks and threats at the local level can be defined. In other words, the state of human security in the local community is a synonym for the quality of life of its citizens.

THE QUALITY OF LIFE IN THE COMMUNITY - THEORETICAL APPROACHES

The local community represents a place, a social and cultural framework in which citizens participate, in the most direct way, in the most direct forms of social life. This is the context in which the real quality of social life can be explored in the best possible way (Đurić, 2008).

Data collection and analysis of indicators (indicators) of quality of life in the local community are often based on the premise that new data can lead to solving problems that were previously ignored, which contributes to a better personal and social life of citizens. This means

4 From the report of the US Secretary of State, submitted to the government on the results of the San Francisco Conference in 1945, on which the Charter of Human Rights and Freedoms was passed

that the research of any phenomenon, problem or event in the local community, the analysis of the functioning of institutions and agencies of the local community, and the perception of cause-effect relationships, relationships, correlations between occurrences in the community, directly or indirectly aim to improve the quality of life in local community.

Alternatively, this syntagm can also deal with less "tangible qualities", such as freedom of expression or social justice, air quality or access to health services (Land, 2004). Quality of life is more a direct manifestation of sustainability, which refers to the ability of a city or local community to meet the present needs of citizens without jeopardizing the ability of future generations to meet their complete needs (World Commission on Environment and Development, 1987: 23; Committee on Identifying Data Needs for Place-Based Decision Making et al., 2002: 23).

Due to different conceptual approaches, quality of life has been the subject of numerous studies in various fields of research, such as economics, sociology, political science, psychology, philosophy and medicine. The first approach sees the quality of life through the means and goods available to the individual – quality of life is based on objective resources that allow people to exist. This approach began to be applied in Sweden during the 1960s, as the so-called *level of access to life* (Erikson, 1974, 1993; Erikson & Uusitalo, 1987). The approach implies the ability of an individual to control resources such as money, property, knowledge, mental and physical energy, social relations and security, on the basis of which he can consciously direct his or her living conditions (Erikson, 1993: 72, 3).

The second, alternative approach to the study of quality of life relies on the notion of subjective well-being (Poggi et al., 2011). In this case, the concept of quality of life corresponds to the concept of a good feeling, that is, a subjective condition in terms of happiness and satisfaction. This approach is rooted in the tradition of American social psychology, developed in the 1960s and deals with the quality of life in terms of meeting needs. The quality of life according to this concept should be defined based on the observed results achieved during an individual's life rather than the availability of social and material resources. Subjective well-being is also a key focus in the development of this approach (Easterlin, 1974; Frey & Stutzer, 2000; Clark, 1996; Clark & Oswald, 1994).

The third conceptual direction was founded by Sen (Sen, 1985, 1992; Nussbaum & Sen, 1993). According to him, the quality of life can be understood in terms of "individual ability to achieve different valuable functionalities". In addition, quality of life does not rely solely on the availability of resources, although this issue has been recognized as a key element for achieving well-being in several domains. On the contrary, quality of life should be related to achieving real freedom, which allows people to achieve their goals, as far as possible, and choose a way of life through which they will prove themselves in all domains. More than funds, the emphasis is placed on agencies and empowerment as the key dimensions of quality of life, that is, on the institutional and cultural context and circumstances that give people the opportunity to independently shape their life course in the community in which they live.

The local community is expected, taking into account the needs of its inhabitants, to create conditions in which they will be satisfied with the quality of life, in which the community will strive to meet their needs. The "ideal" community model does not exist, nor can it be developed, but therefore, in theory and practice, communities in which quality of life is assessed as good and in which conditions are created to meet the greatest number of citizens' needs are called *functional or healthy* communities (Boehm & Cnaan, 2012).

A healthy community provides all people with the possibility of making decisions or making choices in the community by providing them with access to: housing, transport, health and healthy food, recreation, education and employment, health and social services, clean air and water, and a safe environment in conditions of social cohesion (Fellin & Peacock, 1995).

Systems (services, institutions, agencies) for providing services to citizens in functional communities base their activities on defined community priorities, reduce the possibility of risk for citizens, put the focus of their work on outcomes (changes among citizens) rather than the processes themselves, maintain the existing ones and establish new social networks of help and support to individuals, accept and support a wide range of family and social structures while respecting individual rights, include citizens (service users) in decision-making agencies, and others (Checkoway, 1995). In doing so, whenever various forms of community activity and social work are realized, account must be taken of the specificities of the target groups and the characteristics of the community in the community whose needs or deficits must be met (Ife & Fiske, 2006). Based on these principles police organization bases its activities within the concept of work in the local community.

COMMUNITY POLICING AND QUALITY OF LIFE OF CITIZENS

There is no agreement in the literature about defining the concept of police in local community – community policing (CP). The first definitions are mainly emphasizing similar principles: solving local problems, involving the community in decision-making, organizational decentralization of the police (Goldstein, 1990; Mawby, 1990; Trojanowicz, 1990; Murphy, 1994; Kešetović, 2003; Kešetović, & Davidović, 2007).), that is, **crime prevention and increasing quality of life** (Adams et al., 2005; Chappell & Lanza-Kaduce, 2004; Skogan, 2004; Community Policing Consortium, 2006; Skogan, 2006; Simonović, 2006; Nikač, 2010). According to Goldstein (2000), the concept of community policing contains several programs aimed at reducing fear of crime among citizens, deterring criminals from crime, increasing the presence of police in the community, improving police relations with the community, and placing a special emphasis on crime prevention conditions. In this way community policing creates conditions for meeting the security needs and increasing the quality of life of citizens.

The concept of community policing represents the association of citizens and police in the fight against crime, that is, it represents the concept of performing police tasks that places emphasis on the formation of a partnership between the police and the community in order to reduce crime and strengthen the security of citizens (Champion, 2003). When the community policing was experimentally introduced in 1970s into police work in the United States, the concept was meant to provide answers to the problems of crime, disorder and conflicts between citizens and police in the local community (Trojanowicz & Bucqueroux, 1990; Cordner, 1995; Chappell, 2009). Today it has taken on the characteristics of social-service work in the local community, and is directed primarily to address the needs and needs of the local community (Spasić et al., 2013; Spasić & Milojević, 2016).

INTRODUCTION OF COMMUNITY POLICING AS A STRATEGY OF POLICE WORK IN SERBIA

The modern era of police development in Serbia began in the mid-1960s and continues to this day. In 2001, Serbia emerged from political isolation and conflict. One of the prerequisites for joining the European Union and challenge to the new Government was to establish a competent, professional and publicly acceptable police service and to implement projects related to the work of the police in the local community. That is why the Ministry of Interior has

selected five locations, representative of all communities in Serbia, in rural, industrial, tourist and urban areas. The selected locations are: Novi Bečej (rural area), Kragujevac (industrial zone), Vrnjačka Banja (tourist center), Zvezdara (city municipality) and Požega (traffic hub). The project "Police in the local community" formally started to be implemented in February 2003.

Shortly after the start of implementation, the project changes its name to the "Safe Community". A safe community is a term that has entered the field of research of many institutions in recent years. It was presented as a proactive, coordinated activity of state and social institutions and citizens to improve community security (Aldous & Leishman, 1999). The development of this concept in Serbia has paid attention to those organizations and institutions that are responsible for community security, citizens' safety, public order and peace, and the overall quality of life, above all, to the police organization.

With the introduction of the concept of a safe community and a community police strategy in Serbia, the first local security councils were formed. Designed as the "security forums" of key local institutions, these bodies were supposed to contribute to improving human security and the quality of life in the community. Therefore, theoretical considerations in this paper are directed towards the analysis of the conducted quantitative and qualitative research with the aim of reviewing the legislative, security and sociological environment in which local security councils are established and operating. The subject of research will include formation, activities, positive experiences, but also obstacles and limitations in the work of local security councils. The aim of the research is that through analysis of researches realized in period from 2003 to the present it gets insight into the specificities of the functioning and the results of the functioning of these bodies.

LOCAL SECURITY COUNCILS

The Local Security Council (LSC) in the municipality or city is established when representatives of key authorities, institutions and groups agree to act jointly in order to make their local community a safer place for the lives of citizens and visitors. The Local Security Council exists to provide advice on community safety issues, and to encourage closer cooperation between key local actors – authorities, organizations and citizens. It is important to remember that the Local Security Council is not a political forum (The Safety Management Manual - in cities and municipalities, 2015: 15).

These multi-sectoral bodies are, in their essence, security partnerships and include representatives of local self-government, institutions and groups of citizens working in partnership, agreeing, and deciding on the direction of action on the basis of security needs, in order to achieve a common goal of improving community safety, inter alia, improving the quality of life of its citizens.

Role and activities. According to the Handbook for the operation of the Security Council - in cities and municipalities (The Ministry of the Interior of the Republic of Serbia and the Standing Conference of Cities and Municipalities, 2015), the activities of the Local Security Council are:

- To define security issues in the community;
- To determine the strategy of action;
- To propose, consider and adopt concrete programs, projects, initiatives for resolving security problems (especially preventive);
- To precise roles and responsibilities in the implementation of activities;

- To form inter-sectoral working groups that will address the identified problems through the development and implementation of specific projects;
- To evaluate activities.

Formation. At the national level, there is no legal basis for the establishment of special local labour or occasional security bodies. The most common legal basis for the establishment of LSC comes from the Law on Local Self-Government and the Statute of the Municipality, as the highest legal act of the local self-government unit. The Law on Local Self-Government enabled the Municipal Assembly to establish permanent or interim working bodies for the consideration of issues within its competence. Statute of the municipality determines the number of working bodies, the election, rights and duties of the president and members of working bodies. The Statute regulates the organization and work of organs and services in the municipality or city. In some statutes of the cities, the establishment of a safety body is foreseen and defined in advance. Thus, the Statute of the City of Novi Sad[5] defines establishment of a Council for Public Order and Security, as a working body at the Assembly. In some other cities (Novi Pazar, Kragujevac, Belgrade), there is no explicit possibility for the establishment of a safety working body (Djordjević & Radovanović, 2014). However, there is a possibility that the City Assembly will establish permanent or interim working bodies. The City Assembly's Rules of Procedure further operationalize the organization and operation of such bodies.

Another possibility is that the president of the municipality establishes the working bodies, which are necessary for the functioning of the municipal administration. The Law on Local Self-Government does not provide for direct competence, or the possibility for the president of the municipality to form such bodies, but it establishes that the president can perform the tasks prescribed by the Municipal Statute or other act.[6] This means that municipalities can also assign additional powers to the president, including the formation of working bodies. For example, in Čukarica, the president of the municipality has the authority to establish commissions and other bodies necessary for more efficient functioning of the municipal administration, in accordance with the law and the Statute. In the municipality of Alibunar, the president can establish expert working bodies responsible for certain tasks within his competence (Djordjević & Radovanović, 2014: 24).

Due to the fact that the possibility of establishing and definition of the form of security council is left to each local community individually, and not to the law, there is no single method of establishment, but the modalities of founding of councils vary. Differences in the establishment of the council essentially arise from whether it is established by the legislative authority or executive power. In case it is established by the legislative authority, or as a working body of the Municipal Assembly, the Assembly shall pass a decision on its establishment. And vice versa, if it is established at the executive branch, then the executive authorities, the president of the municipality or the municipal council, make a decision on his education.

The practice shows that the council can be established as a temporary working body with a limited mandate or as a permanent working body. If the council is established as a temporary working body, it is desirable that its mandate lasts for at least 5 years in order to ensure the continuity of this body and after regular local elections. Choosing the modality of establishing a security council should be guided by the opportunities and needs of the local community, and the institutional mechanism that will be most efficient and most rational in meeting the goal should be chosen (Bjeloš et al., 2011: 10).

Composition. Members of Security Council include different stakeholders that are interested in resolving community security issues. The composition of the Local Security Council is not the same in all municipalities and cities, and there are some differences that are primar-

5 Čl. 26, Statut Grada Novog Sada, „Sl. list Grada Novog Sada", br. 30/2008.
6 Čl. 44, Zakon o lokalnoj samoupravi, „Sl. glasnik RS", br. 129/2007 i 83/2014 – dr. zakon.

ily reflected in the number of members and the functions they perform. Nevertheless, in spite of the existence of certain differences, it is possible to determine the minimum of representatives of the local community who are common to the councils in all places. These are: the mayor of the municipality/mayor, the chief of the police administration or the commander of the police station, representatives of municipal bodies, presidents of local communities, representatives of the Municipal Court, social, health and inspection services, educational institutions, non-governmental sector, owners of local companies and representatives of the local community who reflect ethnic composition of this community.

Current situation. According to the results of the conducted research on the establishment and functioning of local security councils in Serbia (Bjeloš et al., 2011; Djordjević & Radovanović, 2014), the composition and structure of the existing LSCs is not the same in all municipalities and cities in Serbia. Differences in composition exist, depending on security problems in the territory of local self-government. Thus, the various actors involved in improving community safety are included in the council. They are most often the representatives of local self-government, who establish LSC, and police administrations, or stations, social protection institutions and health institutions.

Local authorities have a key role in the work of the LSC, since they founded them and should govern their activities. The assessment is that police representatives participate in all LSCs, which are currently established. This was confirmed through interviews and consultations with the representatives of local self-government and police (Djordjević & Radovanović, 2014), then follow the representatives of social welfare institutions (89.4%) and health workers (84.2%).

This order is also logical due to the main security problems that local self-governments most often face: domestic violence and drug abuse, according to the representatives of municipalities and cities in Serbia and the police. After that, the highest is the percentage of the representatives of schools (68.4%) and judicial authorities – prosecutors' offices and courts (63.15%). In some cities in Serbia, the army (Pčinj District) is also involved. Golubac planned to include the deputy commander of the police station, the misdemeanour judge, the representative of prosecutor's office (from Gradiste, since there is no prosecutor's office in Golubac), and the representatives of the elementary schools and the Centre for Social Work. In Paracin, in addition to the mentioned institutions, they consider it necessary to include the representatives of all political parties.

The manuals for the work of local advisory bodies on security, or crime prevention, mainly suggest the stated composition of the councils.[7] By deciding on the establishment of LSC, it is not necessary to limit the composition, but to leave the possibility of involving those actors who can help solve a particular problem, which was not planned when it was formed. The number of council members should not exceed 15, due to the efficient functioning of the council. Practice shows that security councils in different municipalities and cities in Serbia usually have from 10 to 15 members (Bjeloš i dr., 2011).

In case there are more than 15 members, it is necessary to divide them into working groups. In some municipalities and towns (Becej, Leskovac, Bujanovac) in Serbia, security councils are divided into working groups, depending on security issues and local government priorities. Thus in Becej there are working groups for general (anthropological) prevention, technical prevention, community policing,[8] and 11 working groups were formed in Lesko-

7 For example, the composition of the Croatian Crime Prevention Councils is similar to that of the LSB in Serbia. Police representatives are involved, along with contact police officers, whose number is currently more than 700. Representatives of schools, social and health care institutions, minority groups, youth associations and civil society organizations are involved.

8 Odluka o imenovanju članova radnih grupa Opštinskog saveta za bezbednost, Opština Bečej, 12. decembar 2010. god.

vac.[9] In operational terms, division into working groups can greatly accelerate the work of the LSC. However, it is always necessary to keep in mind that the establishment of new working groups does not make the LSC work unclear. The focus of the LSB should always be to solve the security problem (Djordjević & Radovanović, 2014).

ASSESSMENT OF THE STATE OF LOCAL SECURITY

One of the basic tasks of LSC is the analysis of the state of security in the local community. The analysis should be based on the collection and assessment of all available data, as well as on identifying the problems affecting citizens' safety and determining priorities. The assessment of local security is a description of the state of security in the community obtained through a process that involves the analysis of key members of the local community, then collecting and analysing data on issues related to security and citizens' sense of security, as well as making conclusions based on data analysis and proposing measures for problem solving. Assessing local security helps the security council better understand the problems citizens face and the issues that matter to them. Therefore, for a successful assessment of local security, it is important to consult citizens about the reasons and consequences of their concerns.

LOCAL SECURITY ASSESSMENT METHODOLOGY - SARA MODEL

In the practice of solving security problems at the local level, the most commonly used is the SARA model, which is used for determining security problems and taking measures for their long-term elimination. This model proved to be particularly useful in preventing crime and building a relationship between police and local actors. The SARA model was developed by the National Community Police Team in New Zealand. In addition to this model, the Crime Prevention Assessment Tool of the United Nations Office on Drugs and Crime is also used.[10]

Within the SARA model, there are four phases: Scanning, Analysis, Response, and Assessment.[11]

Model SARA, with key elements (issues, activity description, etc.), looks like this:

S.A.R.A.	
S	SCANING | Regular monitoring of the situation
A	ANALYSIS | Regular analysis of the situation
R	RESPONSE | Making appropriate recommendations and solutions
A	ASSESMENT | Assessment and evaluation of the achieved results

	Questions	Description

9 Odluka o osnivanju Saveta za bezbednost Grada Leskovca, „Sl. glasnik Grada Leskovca", br. 7/2011 i 17/2014.

10 http://www.unodc.org/documents/justice-and-prison-reform/09-82502_Ebook.pdf. Accessed on May15, 2018.

11 http://www.saferworld.org.uk/CSS%20prirucnik%20-%20bos%20reduced. pdf. Accessed on May 15, 2018.

I. SCANING (collecting data about the situation in the local environment, regular monitoring of the situation)	What is the problem at the local level?	A detailed description of the problem that should include the behaviour of an individual or social group, as well as place and time.
	How is the community concerned by the problem?	Identify the actors who initiated the topic (individual, community, local self-government) and the frequency of security issues
	Are there other sources of knowledge about a community problem?	Gather additional information that will prove that the threat is real.
	Why is the security issue a threat?	Determine specificities (cost, cost, vision) that distinguish the security problem from others
	Who is responsible for causing the security problem?	There are many players who should solve the security problem, but the culprit is mostly one.

	Questions	**Description**
II. ANALYSIS (processing of the collected data for the purpose of making the hypothesis about the cause of problems and modeling solutions, regular analysis of the situation	Who?	Determine and understand the behavior of the subject and his/her motives, that led to appearance of security problem, or so called the analysis of environmental actors.
	What?	Processing the collected data to determine the causes, types and consequences of a security problem
	When?	Understand the correct moment that led to appearance of the security problem.
	Why?	Compare the behavior of the subjects that have caused the security problem and determine the basic characteristics for the given community.
	Where?	Determine why this local community is different from the others.
	How?	Overview of possible solutions along with their constraints when applied to a local community

	Questions	**Description**

III. RESPONSE (drafting appropriate recommendations and solutions)	What do you want to achieve?	Determine the initial and final desired goal that you want to achieve by applying the action.
	How to choose the right solution?	Find ways in which similar local security issues have been resolved by other local communities to determine costs and to choose between offered alternatives in accordance with material and human resources.
	Have some actions already been implemented?	Identify past activities in a local community that had a positive or negative outcome.
	Who is responsible?	Based on the plan, select the responsible and responsible for implementation on the basis of the appropriate criteria. In the end, the implementation of the plan.
	Questions	**Description**
IV. ASSESSMENT (evaluating the results achieved)	Have all the goals been achieved?	Measuring results of activities.
	What kind of activities have been implemented and which are not?	Collecting data on the results of the activity and determining the reason for the non-realization of some of them.
	Have all the actors carried out the given activities?	Collecting data on the activities of the involved actors in the local community and the assessment of their impact.
	What activities should be undertaken in the future?	Based on the evaluation of the activities, the conclusion about the extension of the activity should be carried out.

CONCLUSION

In general, the safety assessment is carried out on a monthly basis, during the meetings where the representatives of the police and local self-government are most often involved. This means that there is no strategic consideration of the solution to security problems. During meetings the problems are recognized that affect citizens' safety and define priorities. It often happens that the police and local self-government do not have the same position on the security priority.

Research findings suggest that the SARA model is not used as part of the work of local safety councils. At the same time, the analysis of the state of security in the area of municipalities in Serbia does not have a gender dimension. This means that gender aspects are not

recognized, that is, the different influences and consequences that the security challenges and phenomena have on boys and girls, that is, women and men.

In other words, if the quality and effectiveness of the implementation of the concept of community policing in Serbia is measured, among other things, by the quality and efficiency of the work and functioning of local safety councils, then one can ask if the realization of this concept remains only at the level of "social experiment" or mere promises given in the process of joining the European Union.

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NEW WAYS IN THE MEASUREMENT OF THE POLICE PERFORMANCE IN HUNGARY: RESULTS OF THE GOOD STATE AND GOOD POLICE PROJECT

Vince Vári[1]
National University of Public Sector, Budapest, Hungary

Abstract: Law enforcement is a unique, clearly delineated area of state involvement. Enhancing security is an important aim of state involvement, which affects diverse areas. Research thereon relates the interdisciplinary concept of security to conflicts and socio-economic crises. As a consequence, setting up a framework of policies for the topic demands a plurality of methods. Police performance measures should be multidimensional to capture the complexity in modern policing. Policing experts have proposed several considerations in developing performance indicators. The Good State and Governance report published in 2015 names security and trust as defining spheres of influence. In my paper, I present the characteristics the sorts of indicators, showing the role of the quality indicators, the specificities of the Hungarian police performance measurement nowadays and the results of the "Good State - Good Police" special project.

Keywords: performance, measurement, indicator, Hungary, trust, legitimacy.

INTRODUCTION

It has been acknowledged that public security is a measurable social phenomenon; the objective state of private security is shown by criminal statistics; and public opinion concerning public security informs us about subjective security. Public security is a product of cooperation, which is a sum of the official services provided by the state and the individual and collective accomplishments of self-defence (Finszter, 2009: 8). On the other hand, it is undeniable that the chief element determining the level of public security is the police. This statement is especially true in light of the fact that Hungarian society expects the police to ensure public security and holds them accountable for it (Barabás, Irk, Kovács, 2008).In the earlier sections of our study, we have pointed out that security is a complex concept with several components. According to a study by Mátyás Szabolcs és Sallai János published in 2015, complex security has 6 components, with economy, environment, defence and public security as their main factors. "In order to enforce the abstract standards of public welfare, the state has to take up the role of creating and protecting values in the spheres of politics, economy and society." (Kaiser, 2015: 2).

The author sums up the processes relating to this statement under the headings of financial and economic crisis, effects of climate change, terrorism and illegal immigration. We can describe the aspect of public policy in the same way as we handle the effects of personal and

1 email: variv@uni-nke.hu

social (public) risks (their prevention and consequences). However, in today's complex world, it is difficult to treat the decrease of emergencies individually.

Accordingly, we can define the requirements of the content of "good law enforcement" and specify the indicators that are capable – through the relevant measures – of enhancing the citizens' sense of security, along the principles of the concept of good state (Kaiser, 2015).

According to our hypothesis, this quality can be in essence identified with the change that law enforcement work achieves in the level of public security characteristic of society. At the forefront of our research is the social quality of law enforcement work, which has a complex definition with respect to public policy too. This complex task is also important because in the past 25 years, the socio-economic background that characterises the natural environment of complex law enforcement work has changed significantly.

It should definitely be mentioned that there are several offences, where the effects of changing the statistical method and raising the misdemeanour threshold to 50 thousand forints did not and could not be felt.

THE RESULTS OF THE RECENT PERIOD – A FEW CHARACTERISTIC TRENDS IN CRIMINAL STATISTICS

In criminal statistics – which is held to be a manifestation of the state of public security, there have been significant changes recently. In the case of certain offences (such as the fraudulent use of documents and non-cash paying instruments), the significant rise has not affected the subjective sense of security of the majority of citizens. No trends of constant rise or decrease could be determined concerning the individual crime types and the operational criminal situation has not deteriorated. We can state that since 2012 the decrease in the numbers of crimes has been practically constant. Considering the figures of the past 4 years, the number of registered crimes has decreased by nearly 200 thousand. What can be behind this constant decrease, which can now be considered statistically relevant? It is often brought up as the reason for the decrease that the misdemeanour threshold has been raised, which has naturally reduced the number of known offences significantly. This was obviously a great item in the single year when this act of decriminalisation was performed. However, it cannot account for the further significant decrease of the following years. Since 2013, there has been a major decrease in the number of known offences (2013: 358.806, 2014: 309.394), which can be partly attributed to the modification of the statistical method mentioned above, and, according to several experts, the results of a stricter criminal policy, furthermore, a new interpretation of presence in public areas can also be felt behind the decrease. Besides quantitative change, we should also raise the topic of qualitative change. Besides the decrease in the number of known crimes, several offences that greatly affect the subjective sense of security have also dropped in number. As regards the years between 2011 and 2015, it should definitely be highlighted that the number of robberies (3202→1442) and homicides (327→205) has constantly decreased. These two types of crimes have an especially great influence on the citizens' subjective sense of security. The number of larceny crimes has also decreased significantly, which – because of the great number of incidents- is one of the offences that have the greatest influence on national crime figures (181,982→111,324). It is evident that raising the misdemeanour threshold has also contributed to the significant drop in the number of incidents; however, even if we do not consider that, the number of known thefts has decreased.

Based on the above, we can state, that considering the crime statistics data of the past six years, the number of known crimes has indeed decreased. Practically speaking, the last time

that saw such low crime figures was the period around the change of regime. Besides traditional statistical tendencies, we should also mention that along with a general improvement, a mosaic interpretation of the data is also available. In an international collection of studies on police forces, published in 2013, the author of the chapter on Hungary points out that while the risk of becoming a victim is relatively low, the sense of security is not higher than the EU average (Leyrer, 2013. hiv. Christián, 2014). All in all, the decrease in the number of registered violent crimes in the representative group indicates a measurable improvement of the government's power to prevent and fight crimes. Law enforcement capacities have increased, state expenditures on public order have grown and the human resources of law enforcement have increased. Trust in the legal system has strengthened.[2]

POSSIBILITIES OF MEASUREMENT AND ASSESSMENT IN THE LIGHT OF TERRITORIAL INFLUENCES

Due to its cooperative nature, the state of public security is influenced by several factors besides the activities of the police. Thus, it is hard to form a clear picture of the quality of the work of the police merely based on public security data.

As Sallai János put it in *Belügyiszemle* (Internal Review) in 2014, police (and law enforcement science) also draw upon the findings of criminal geography. This appears in the aspects of the Good State and Governance Report, which states that the data of macro statistics and organisational performance reviews should be analysed in light of the characteristics of locality.

In his already quoted study, Bíró Gyula highlights the following local aspects out of the defining components of public security (Bíró, 2011):

Criminal/traffic factors: tendencies in the number of crimes occurring in the narrow or broader living environment – in the citizens' proximity – and the "quality" of the crimes in the direct living environment, furthermore, the traffic conditions of the routes most frequently used by the individual.

Factors related to the order of public areas: the condition of public lighting in the immediate living environment of the individual and around their place of work and sanitation conditions in their immediate surroundings.

Factors related to human relationships and human communication:

- the relationship between the individual and police officers;
- police presence in public areas;
- the quality of the police's response ability;
- the quality of police and press communication concerning the various crimes;
- the presence of the auxiliary police in public areas

When examining social influences, an analysis of integrated urban development strategies can become important background material too. Based on the background material needed

2 According to a survey by TÁRKI, trust in the Hungarian legal system has increased between 299 and 2013 (from 4.0 to 4.78). The 2014 survey by KSH (Hungarian Central Statistical Office) used a different methodology and produced a score of 5.1 on a scale ranging to 10, which could become a baseline data of measuring trust in the future (Good State and Governance Report, 2015: 6). TÁRKI's survey on trust in institutions has shown a significant increase of trust in the police between 2009 and 2013. Out of the public institutions examined by TÁRKI, the police achieved the second highest trust index after MTA (and received a higher score than the Parliament, the Central Bank of Hungary and the State Accounting Office). (Good State and Governance Report, 2015: 14).

for its preparation (Dietz, 2011), we can see that the question of public order is an important methodological and (regional) conceptual component. In task forces, the question of public order is treated together with economic activity and employment, the situation of young people, the question of immigrants, the delineation of the targets of urban rehabilitation and citizens' involvement.

QUALITY AS THE DECISIVE ATTRIBUTE OF EFFICIENCY

Efficiency to the output performance of the police may be approached from an organizational and functional side. By organizational performance we mean the figures that can be numerically and statistically articulated and functionally measured in the outside world. Efficiency, also in case of the police means more and something else than simply being successful/efficient, either in case of law enforcement or economy. The difference between the two notions is essentially caused by the particular normative based dependence within the judicial system, and is given by the complicated relationship between the constituents with the same and different objectives, but it also is elusive. Let us have a look on the contradictions of legitimacy and efficiency. According to *Skolnick,* the main problem of democratic social law enforcement may be that there is a contradiction between the police's endeavours to be efficient and the requirements of legitimacy (Skolnick, 1975: 3).

On the other hand, the environment – the inhabitants – that integrates police, as indicators measurable at the scene of the result, may not be covered by the traditional output results of the organization. In the environment, efficiency in the community may hardly be influenced by the output results of the organization, and show little interaction with social utility. *It is easier in case of an enterprise as its profitability can be measured in an exact way, so the compulsion of development guarantees gain/grow only together with increasing efficiency. However, in the absence of exact numbers, the efficiency of public administration cannot be measured by quantitative indicators, and if it is attempted, it will have consequences that hide low efficiency and discredits statistics* (Finszter, 2008: 14). In international literature, distinction between result indicators (output) and simple output indicators (outcome) is a fundamental point. When measuring "output", inner performance strongly correlates with the desired police performance results. Achieving them completely comes under the direct control of the police. These are, for example, the number of arrests, taking ups and procedures in case of crimes or antisocial behaviour in connection with prostitution. A certain police force exactly controls the former number, that is, they direct the suitable time and resource in order to absolve/achieve the given output. On the other hand, the results, contrary to the simple output indicators, contain social advantages, as well in connection with what policemen "extract" with regard to the volume. Output indicators encourage policemen individually and also as an organization to focus on increasing exclusively certain easily quantified results, while disregarding any other aspects that would have deeper social effects (Davis, 2012).

At an organizational level, efficiency may mean the efficiency of the whole organization, or the efficiency of one's work. In case of an organization, individual performance assessments may also cumulatively give the summary/aggregate, averaged, exact performance indicators of the whole organization's performance. *Still, the mode of action of efficiency typically has a meaning requesting interpretation from a functional aspect since its ambivalence. The police, as an organization, when fulfilling the performance indicators specified by themselves may be opposed to the real requirements and needs expressed by the community.* It means that the useless activities – according to the society – of the organization or producing "inner" indicators realised during its dysfunctional operation, seemingly lead to performance growth. But at a

social level, an organisation that conceptually and strategically does not function properly and according to real social requirements, its performance appearing in its outer environment, paradoxically still generates negative social appraisal.

INDICATORS (FACTORS) DETERMINING TRUSTIN THE POLICE

Measuring the performance of the police has become an increasingly important research field in several countries. However, there is no scientific agreement concerning the applied forms and methods of efficiency measurement. It is also debated which indicators should be used from the different ones in order to promote better performance. On the other hand, there is a full agreement that efficiency measurement is potentially an excellent policy and professional instrument, and may have an effect on the work and judgement of the police. International literature published since the 1970s can be arranged by several methodological aspects, mainly depending on whether scientists gave priority to quantitative or qualitative, objective or subjective factors. Perhaps one of the most important quality factors is the trust and the equality. In the United States and in other developed democracies, the progress towards the implementation of fair and efficient law enforcement inevitably implies its slowdown and deadlock if universal suffrage is not accompanied by equal opportunities. Maybe, it is not simply a coincidence, that the winners of police efficiency are the best performing countries of this trend, such as Denmark, Finland, Iceland, Canada and Australia. These countries have the most developed systems of welfare reallocation and also have the lower level of income inequalities. Making the police more efficient and more humanitarian requires greater and more comprehensive reform than reorganising and operationally restructuring the police. It must be added, that citizens' temporary dissatisfaction with governmental functions is neither unusual nor necessarily problematic. However, there is a serious concern if chronic dissatisfaction with the police in more important segments of the population becomes more usual and changes into distrust in its democratic operation. The citizens of countries undergoing democratisation have greater needs for higher performance of their governments and especially police forces. The question is: how can it be ensured and maintained? The researcher justifies that liberal democratisation is perhaps the strongest and most effective factor of forming an effective police all over the world. Below I will outline some of the research results that are specifically related to the quality measurement method.

In her study, Hinds (2009) analyses the effect of police officers–civilians encounters on people, he distinguishes former and later contacts, and also whether they are initiated by citizens or police officers and which one has a greater role in forming satisfaction, i.e. trust. These results indicate that if people's expectations on police encounters initiated by themselves are not fulfilled, the effect is more negative as, in that case, people's expectations are higher. Hinds concludes that the police are able to improve citizens' satisfaction on their own, thereby to improve people's opinion on the legitimacy of the police by accepting practices and procedures that the majority considers to be fair. Changing practices and procedures that lead to dissatisfaction with the police during the encounters (measures), is clearly a productive strategy. It can be stated that the police cannot significantly improve their performance in connection with crime control, quasi their quantitative indicators, but in the long-term they can also do so if they use every opportunity when they come into contact with citizens.

According to Moore and Braga (2004), by increasing the number of arrests and apprehensions, crime reduction for the benefit of the community cannot be reached. In their opinion, there are several other things that can influence crime reduction by having a greater influence

on society. In their study, Charbonneau and Riccucci (2008) outline the importance of the factors of social equity when measuring the performance of the police. They suggest social equity indicators, including the assessment of fair treatment, which is similar to the so called "fairness of the procedure". In connection with trust in the police, a research has confirmed that the community's trust in the police primarily depends on demographic, attitudinal and environmental factors.

In their comprehensive empirical research, Rogge and Verschelde (2009) measured citizens' satisfaction with using composite indicators and a non-parametric mathematical method with regard to local police forces and regions. More precisely: the authors of the study suggest the user approach of the above mentioned popular Data Envelopment Analysis method together with applying the so called "benefit of the doubt" model. The most important benefit of the method is that in citizens' satisfaction it weights the effects of functions and tasks done by the local police by an endogenous method with composite points, which makes it possible to calculate different values and approaches in order to interpret "good local police" more precisely when comparing police forces. The methodology well illustrates the citizens' satisfaction in a broader assessment of local police and regions. The DEA model using non-parametric assessment methodology highlights the weak and strong points of police functions determining citizens' satisfaction, and also performance values on both micro (a local police station) and macro (region) levels. Researchers found that average macro satisfaction points in Belgium are 91.94%. It can be reported, that in Belgium most citizens are usually satisfied with the work of the local police forces. The incredible advantage of the model is that it was able to identify the basic functions of local police stations that are the most important ones according to the citizens' own assessment. Those indicators were identified that basically explain the weakening and strengthening of citizens' satisfaction in connection with practicing police functions. Results showed that rural environment does not strengthen the level of satisfaction on its own in case of the participating local police stations, and regional differences have much greater significance than it was originally supposed. This research was the first to measure citizens' satisfaction with multidimensional scores and to use them in the assessment of the efficiency of local police forces. The research uses the method that considers specific circumstances of local police forces as it weighted them endogenously and assigned individual values to them.

As an alternative solution, in international literature several models have already been recommended to measure the efficiency of the police. The DEA methodology may be regarded as almost an independent category, and on that basis, the performance of the police may be based on "objective" input and output measures. The "most efficient" comparison of such was done by Drake and Simper: they compared forty-three police forces from a crime-geography point of view using the DEA analysis, which made it possible to examine the effects of environmental factors from the aspect of the effectiveness and efficiency of measures. They have found that environmental factors significantly influence the relative performance rank of police forces. In case of the North–Welsh police, the relative performance rank changed in a way that counting such factors as, e.g. the average of the population, one-parent families and population density brought the North–Welsh police to the 1st position from the 30th position (Drake and Simper, 2005).

THE PRECONDITIONS FOR DEMONSTRATING PERFORMANCE MEASUREMENT

At a conceptual level, the separation and independent handling of crime and the effect of the police working (and their effects) requires consideration. In fact, the authentic interpretation of the relation between the subjective approach to police and crime and the objective figures of public safety is flawed because it is approached in a causal scheme. Crime is not the consequence of the lack of police performance; in the causal chain neither of them fulfils the role of reason or result. In this way different institutional solutions and interventions which treat delinquency, no matter how strict they are, such as 'zero tolerance', wish to make a change via the tools of police, meanwhile remaining within – the tight one-way causality – its uniformed formula (Tihanyi – Vári, 2015).

We have to realize that improving the quality and the credibility of the police authority together with a growing confidence of the population has a bigger effect than simply fighting crime. It was also verified by researches, which, by analysing the results of opposing police approaches, came to the conclusion that they transformed the criminal situation with very similar effectiveness. However, criminological researches consistently verified the close relation and interaction between crime and police (Szabó, 2002). Handling police outside the scope of crime and using its statistics for research purposes leads to faulty results, which can encourage wrong conclusions. Crime can be handled solely in correlation with police activity and social processes, where several factors must be considered, which can make the real nature of police exact and intelligible. Such factors can be:

- Complex statistics integrated into society

When evaluating the quality of police activities, it is indispensable to know and reveal local social conditions and figures. Local unemployment, social stratification, standard of living and other significant macro factors can definitely create different expectations towards the police as a police authority. At a national, county or local level the root cause of crime is the functional disorder of basic social processes which can be traced back to social disorganization, the weakening of social control, cultural conflicts or other anomalies.

- The opinion of local governments, civil organizations and churches

We must pay considerable attention to specifically local public safety requirements, since police can be qualified as meeting these. If local government law enforcers work hand in hand and in active cooperation with civil public safety self-organizations, they can react more effectively to the local challenges of public safety.

- The basic unit of police is the local body

The foundation of efficiency is the evaluation and measurement of local settlement units revealing its specific crime and police situation. The national survey is not able to show and deal with the social, economic, cultural and other processes of smaller geographical units; which not only creates an opportunity to crime, but also motivates perpetrators (Déri, 2000, 62). Knowing the real quality and size of crime makes it possible to adapt the strategy of crime prevention and investigation; adjusting the organization, structure, division and location of the forces, while considering the tendencies and prediction of crime (Boge, 1991).

THE "GOOD STATE - GOOD POLICE" IS A SPECIAL REPORT OF THE "GOOD STATE – GOOD GOVERNANCE" IN HUNGARY

The 2016 chapter of the Good State-Good Law Enforcement Special Report was discussed by the Scientific Council of the Interior Ministry (hereinafter referred to as "the Council"). In addition to acknowledging the merits and the forward-looking nature of the report, the Council has made several criticisms. These can be summarized as follows: 1. There is a need for theoretical consideration; 2. As a result, the title of the special report will be narrowed down, which will then be referred to as the "Good State - Good Police" instead of "Good State - Good Law Enforcement"; 3. It is necessary to specify the precise demarcation of the police performance assessment system; 4. Further expansion of the international outlook is necessary; 5. It is appropriate to further elaborate the element of territoriality. Accordingly, the 2017 Working Paper of the Good State - Good Police Special Report was developed along the lines set by the Interior Ministry Science Council.

- Purpose of the measurement

The law enforcement is one of the specific, well-defined areas of state involvement. Accordingly, the principles of the "good police" can be defined along the principles of the "Good state – Good Governance" concept and the indicators that can be used to reflect the quality of law enforcement work can be identified. This quality can be identified essentially with the quality that law enforcement works as a change in the state of public security that characterizes society. The social status of law enforcement work is at the forefront of our study of the special report 2017-2018.

The NUP's Research and Development and Innovation Strategy is well linked to the "Good State" report and the definition of "Good State". "A good state is one that does not give up its humanity, and good law enforcement is the one that involves effective and lawful functioning, and that helps the functioning of the state by protecting the people. Therefore, we do not place the organizational but the social goals of the police in the focus of our research. Organizational goals can be seen as indicators of internal effectiveness as a quality indicator.

- The evaluator

The police's organizational benchmarking is defined as an evaluation system that promotes the professional, lawful and professional operation of a law enforcement body, improves the efficiency and effectiveness of its activity, supports decision-making and decision-making in management. The aim of the police organizational performance assessment is thus to operate a (complex) management information system. The basis for performance measurement is that the organization's strategic objectives can be viewed as a coordinated performance index for the purpose of achieving goals. Therefore, long-term and comprehensive strategic objectives need to be transformed into short-term and concrete goals. Organizational performance evaluation means dismantling organizational goals and monitoring the tasks required to achieve them.

On the other hand, the special report is based on the notion of good state, not the organization of the police, but the development of the indicators of the quality of the social functioning and the effects of the police. In this regard, quality indicators mean the results of the achievement of social goals and the effectiveness of their effectiveness. This approach is most likely to be based on the expectation that the special report should serve as the basis for policy decisions.

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- The method of the evaluation

A common feature of all organizational performance appraisals is that the degree of achievement of the organizational objectives is ultimately assessed by the leader who determines the objectives. In the case of the police, this is done linearly upwards. The assessment of the head of the superior police force is partly based on the subjective self-assessment of the head of the subordinate body. To this end, the head of the regional body evaluates the performance of the local body by 20 January of the year following the subject year, taking into account the self-assessment of the local body. The national commander shall evaluate the performance of the territorial body by 31 January of the year following the year of issue, taking into account the self-evaluation of the regional body. The Minister of the Interior evaluates the performance of the body performing the law enforcement duties by 15 February of the year following the reference year, based on the proposal of the national commander.

The Good State Special Report is included in a broader dissemination process, but it is true for both evaluation systems that it will be evaluated by the minister responsible for policy as well. The special report evaluation system goes beyond law enforcement policy.

It is important to note that as long as the police's organizational benchmarking process and its main aspects take on normative provisions, special report indicators will be created as a result of scientific research work. One of the advantages of the latter is that the indicator system can be modified according to changing social needs. The special reports of the coming years are not based on a wide-ranging indicator system, but strive to measure the police functions that are perceived by society. It is important to note that the different local characteristics require different organizational, personnel, technical and staffing conditions for police departments working in different geographic areas to provide at least the same quality of service. To do this, it is very important to develop integrated social impact indicators that help to plan and implement complex sectoral and territorial public policy programs.

On the basis of the complexity of police work and the multiplicity of connections between the sector and other subsystems, it can be said that the social dimension is a segment of the performance evaluation of the police organization (which we consider is a great segment). Theoretically, we can say that this is where the organizational activity weakens / where it strengthens. In the Good Police project package, it is therefore important to propose dimensions and factors related to security enhancement.

- The ratios, units of measure used for the evaluation

The performance appraisal system primarily takes the organizational data into account when constructing relationships. The Special Report of 2016 also worked with relationships that addressed the local social inequality indexes. The characteristics of the quality of police work appear partly in the police performance evaluation system. The indicators that are formulated in this system are partly quantitative and partly qualitative indicators. Quantitative indicators include the number of police measures and crime-specific indicators. They cannot be considered as indicators that express the quality in real terms, because they lack, in whole or in part, the necessary benchmark for this. The proportion of the number of people affected by crime can already be suitable to show an indicator of the quality of life of the community. At the same time, one cannot forget that, in itself, the population is far below the territorial features that have a decisive influence on the complex concept of criminality and the sense of security that can be characterized by social space. We do not want to take a stand for the proportional assessment of police measures as organizational performance indicator, but it is certainly not possible to determine the extent to which the various measures affect the criminological phenomena they wish to influence. The special report is working with relationships that include indices that map local social inequality.

THE MAIN TASKS OF THE SECOND PHASE OF THE SPECIAL REPORT 2017

During the first phase, the following segment has changed the structure of police work, the multiplicity of links between the sector and other subsystems, which will determine the structure of the special reports coordinated by the research group of the Faculty of Humanities in the near future.

1. By emphasizing methodological approaches, the content that was relevant to the performance evaluation system of the police was clearly separate. The authors of the special report basically focus not on the complex efficiency of the police organization, but on the (essentially) social framework of the police, we have been focusing on the factors that may affect the subjective sense of the population / community and that public security can be expressed in objective, state. Progress in this means updating the literature and adapting it to content. Our main goal is to answer the challenges of law enforcement in the 21st century.

2. The key ideas of the special report are based on the relationship between trust and security. Among the two key concepts, the "bridge" is space and community (society). In our present study, we strive to move towards the "new paradigm" indicated in the chapters: combining the content and purpose of the basic and applied science research. Our short and medium-term research idea is that we do some small-scale, low-drilling, walking-level research to evaluate the social framework and law enforcement work. For this, it is necessary to identify, in the framework of the first phase, a list of those that are "vulnerable" and some of which are less pronounced along the analyzed social impact are as a long important social impact are as in criminal geography.

3. The 2017 Good State Report Security and Confidence Dimension / Indicator of the Impact Area in Governance also maps the national / local level to the nationwide data. All of this is well connected to the theme of the special report "Good State - Good Police" in 2017, in which we aim to map out the social framework that is emphasized by the new paradigm and is in line with public security and local affairs.

CONCLUSION

The 2016 Special Report of the Special Report outlined an indicator system along which we thought it possible to measure the social impact of the police in accordance with the objectives of the report. Since then, through the Police Headquarters' Scientific Council, we have conducted a number of consultations with the nominated executive positions of the police with the involvement of the Police Council's Scientific Council. As a result, a detailed explanation and a detailed description of the elements (counters and denominators) of the commonly designed indicator system are planned for 2018.

The task, therefore, is to define, expand and detail all of the factors which affect the social impact of the police. In addition, we select from the traditional statistical indicators which are the most suitable for social impact measurements. We combine these with each other, possibly adjusting to the number of police forces or local population. Load up the indicators with actual statistical data. The resulting results are processed, compared, analyzed and deduced. In particular, whether the purpose of police work was properly defined, if not, then what and where to change so that social confidence in the police could grow.

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ETHICAL ASPECTS OF POLICE WORK

Filip Mirić, LLD[1]
Faculty of Law, University of Niš

Abstract: Observance of certain ethical principles is necessary in every profession. They guarantee that professional duties will be performed not only in compliance with the law but also in line with certain moral rules. Without respect of moral rules and ethical norms, all human activities would be deprived of social and moral dimensions. The principles of professional ethics are extremely important when it comes to performing police work because they have special significance for citizens' security, state security and suppression of various forms of crime. The special importance of police activities necessarily leads to a greater accountability of police officers in terms of legality in performing their tasks. As the principle of legality encompasses the principle of ethics, they should be regarded as parts of the same whole. The acquisition of ethical principles is part of the socialization process, but the adoption of specific principles which are important for the operation of the police is also an important segment of permanent police education and training provided at all levels of study at the Basic Police Training Centre in Sremska Kamenica and at the Academy of Criminalistic and Police Studies in Belgrade. This is a prerequisite for good training of police officers and their ability to respond to all challenges of police work.

The paper discusses the ethical aspects of police officers' work at all levels. The author analyzes the provisions of the Code of Police Ethics ("*Official Gazette of RS",* No. 17/2017) concerning the principles of legality and the rule of law, police and judiciary cooperation, organization and functioning of the police, recruitment of police personnel, duties and the rights of police officers, police activities and powers, scientific research and international cooperation. The paper aims to point out the importance of close observance and consistent application of ethical principles in the work of the police in order to secure the implementation of the rule of law principle.

Keywords: police, Code of Police Ethics, rule of law.

INTRODUCTION

Ethics (Greek: *ethos* – custom; *ethikē)* is a scientific study of morality; it is part of philosophy that studies moral values (Vujaklija, 1986, p. 301). The basic task of ethics is to distinguish between good and evil. In every profession, it is necessary to respect certain ethical principles. They guarantee that professional activities and duties will be performed not only in compliance with the law but also in observance of certain moral rules. Without respect for moral rules and ethical norms, all human activities would be deprived of social and moral dimensions. Lately, there has been a growing interest in ethical issues in many areas of professional conduct (Coughlan, 2001). In modern society, making ethically correct decisions is very

1 filip@prafak.ni.ac.rs

important, particularly in the field of business (Pater & Van Gils, 2003).Similarly, the performance of police tasks and activities entails ample ethical challenges and dilemmas which have to be addressed and resolved because the operation of the police is highly important for citizens' security, state security and suppression of various forms of crime. On a daily basis, police officers make decisions and act by evaluating and balancing often conflicting values and interests; they often have to take action regardless of inadequate and incomplete information, under strong emotional and dynamic stress and almost always under pressure (Dujovski, 2017, p. 155). In addition, the special importance of police activities necessarily leads to a greater accountability of police officers in terms of legality in performing their tasks. As the principle of legality encompasses the principle of ethics, they should be seen as parts of the same whole. The acquisition of ethical principles is part of the socialization process, but the adoption and implementation of specific principles which are important for the operation of the police is also an important segment of permanent police education and training provided at all levels of study at the Basic Police Training Centre in Sremska Kamenica and at the Academy of Criminalistic and Police Studies in Belgrade. This is a prerequisite for good training of police officers and their ability to successfully respond to all challenges of police work. The development of police ethics has been the subject of several scientific papers (Jevtović, 2001).

It is important to notice that police ethics was a subject of several international legal acts. At the global level General Assembly of the UN adopted in 1979 Code of Conduct for Law Enforcement Officials. There are many provisions relevant to police ethics in this Code. Art 1 of this Code provides that law enforcement officials shall at all times fulfill the duty imposed upon them by law, by serving the community and by protecting all persons against illegal acts, consistent with the high degree of responsibility required by their profession (Code of Conduct for Law Enforcement Officials, 1979).

Another legal act relevant for police ethics issues is the European Code of Police Ethics, adopted by the Committee of Ministers of the Council of Europe on 19 September 2001. This Code applies to traditional public police forces or police services, or to other publicly authorized and/or controlled bodies with the primary objectives of maintaining law and order in civil society empowered by the state to use force and/or special powers for these purposes (The European Code of Police Ethics, 2001). It was a model and primary source for creating and adopting of the first Code of Police Ethics of Republic of Serbia, adopted in 2006.

This paper discusses the ethical aspects of police officers' work at all levels. In particular, the author focuses on the provisions of the Code of Police Ethics ("*Official Gazette of the Republic of Serbia*" no.17/2017) relating to the principles of legality and the rule of law, police and judicial cooperation, organization and functioning of the police, recruitment and selection of police personnel for police work, duties and the rights of police officers, police activities and powers, scientific research and international cooperation. The aim of the paper is to point out to the importance of close observance and consistent application of ethical principles in the work of the police for the purpose of securing the implementation of the rule of law principle. In order to ensure clarity and systematic approach to the subject matter under consideration, in the first part of this paper the author provides a comprehensive outline of the Code of Police Ethics of the Republic of Serbia.

COMBATING UNETHICAL CONDUCT OF POLICE OFFICERS

In the context of discussing ethical behavior in police organization, we should also stress the importance of social relationships within the organization. Organizational actors are embedded within a network of relationships (Pagon, 2000:11). Presenting of some theoretical

and empirical previous researches in the field of police ethics has a great importance for combating unethical conduct of police officers.

The Rodney King's case is still well-known in the USA. Rodney King, a taxi driver, became a victim of brutal conduct of police officers. Decades later, the Rodney King incident is still bemoaned, and law enforcement continues to reel from the perceptions and implications that were left in its wake. Less-than-appropriate responses to race riots and peaceful protests, as well as widespread mistreatment of racial minorities, still affect how officers approach their jobs half a century later. Moreover, those events have served to whittle down and erode the public's trust in their police, making it that much harder for officers to do their jobs (Roufa, 2018).

Special training of police officers regarding various ethical issues is very important for combating unethical conduct. The issue of a quality and comprehensive training for police remains an open question for all police services in the world. Access to the training depends on social relationships, circumstances and needs of policing. However, common problems faced by police officers, the same or similar types of crime against which they have to fight or to prevent, brings to the conclusion that police training in the world, similar to the actions of the police cannot be much different. Starting from this point of view we can conclude that certain topics of police activities will be common in the training plans of many police services in Europe and in the world. In addition, the principles which underpin training are similar. The dilemmas that are opened in the paper are also applicable everywhere. Ethics in acting is the main issue that is discussed in the basic police training, as well as in its use in advanced or continuing training of police. Appropriate approach, respect for human rights and freedoms, personal integrity and dignity of a police officer, his/her moral and legal actions should never be left in the background and let the police officer himself/herself finds answers to the dilemmas that may arise in issues of ethics and ethical conduct (Dujovski, 2017:161). Serbian police has a special department for internal control of conduct of police officers.

The Internal Control Department of the Ministry of Internal Affairs of the Republic of Serbia is a significant mechanism for suppressing unethical behavior of police officers. The most drastic form of unethical activity of police officers is the commission of various criminal offenses. According to the Annual Report on the Work of the Internal Control Department of the Ministry of Internal Affairs of the Republic of Serbia for 2017, this Department submitted 171 criminal charges against 229 persons, 149 of whom were police officers and other employees in the Ministry (65% of the total number of persons). Corruptive practices make the highest percentage of reported criminal offenses. Namely, from the total number of reported criminal offenses with elements of corruption (361), police officers and other employees in the Ministry committed 324 criminal offenses (89.75%), while citizens committed 37 criminal offenses (10.25%). In relation to the total number of crimes (388) committed by police officers in 2017, crimes with an element of corruption (324) amounted to 83.5% (Annual Report of work of Department of Internal Control of Ministary of Interior Affiairs, 2017) .

This report includes statistics on misdemeanor proceedings initiated against employees of the Ministry of Internal Affairs on the grounds of specific forms of unethical conduct. Due to omissions and irregularities in police work established during the internal control process, the Internal Control Department proposed in 2017 that measures be taken against 323 police officers and other employees in the Ministry. In that context, it was suggested that: disciplinary procedure should be initiated against 245 police officers due to a serious violation of official duty; disciplinary procedure should be initiated against 19 police officers due to minor violations of official duty; 25 police officers were to be warned about the identified omissions in their work; and 21 reports were to be submitted to the heads of police administrations and organizational units in the Ministry in order to take adequate measures against 34 police

officers (Annual Report of work of Department of Internal Control of Ministary of Interior Affiairs, 2017).

Apart from the repressive measures, the Internal Control Department also undertakes certain preventive measures aimed at suppressing unethical behavior of its employees. It also performs preventive controls of the legality of the work of police administrations throughout the territory of the Republic of Serbia and imposes measures to eliminate irregularities in their work. In the year 2017, a total of five preventive controls were carried out (Annual Report of work of Department of Internal Control of Ministary of Interior Affiairs, 2017).

All these activities are, among other things, aimed at improving the reputation of the police in Serbian society. A survey conducted on a sample of 1,000 adult citizens of Serbia showed that the level of trust in the police is increasing, but it is still below the world average of 60 to 90 %. In Serbia, 66 % of citizens consider the police to be corrupt; traffic police is considered to be the most corrupt section of the police, which is a result that is repeated year after year. When asked which institution should be involved in fighting corruption in the police, 20% of citizens consider it to be the internal control in the police, 18 % consider it the duty of the government, and 18% think that it is the duty of the Minister of the Interior Affairs. Only 6% of respondents think that the Director of the police is important for resolving the problem of corruption in the police. The survey showed that 42% of the youngest part of the population (aged 18 to 29) has the least confidence in the police, while 76% of the elderly (aged 65+) have the highest trust in the police. Apart from Serbia, this research was carried on the same number of adult respondents (1,000) in Albania, Bosnia and Herzegovina, Montenegro, Macedonia, and the so-called "State of Kosovo". The results show that citizens in Western Balkans have a high level of trust in education and health, while 59 % of citizens put trust in the police. The citizens of the so-called "State of Kosovo" have the highest trust in the police (69 %), followed by the citizens of Montenegro (65 %), while the least trust in the police was recorded among the citizens of Macedonia (54 %) and Bosnia and Herzegovina (47%). The citizens of the Western Balkans consider that the most corrupt institutions are the judiciary, health care, customs, and prosecution. When it comes to reporting corruption, most citizens of Macedonia (70%) are ready to report corruption, while the citizens of Serbia are least likely to report corruption (only 26 %). The citizens of the Western Balkans consider that corruption could best be prevented by instituting stricter punishment for the perpetrators, punishing corrupt executive police officers, and motivating citizens to report corruption (Novosti, Research results, 2017) .The report on the research results was published within the project "*Pulse of Integrity and Trust in the Police in the Western Balkans*", supported by the European Union through the program "Encouraging Civil Society". The results of this research have shown that the majority of Serbian citizens would not be willing to report corruption, which points to the need to raise social awareness about the detrimental effects of this phenomenon. It is also necessary to strengthen the confidence in the work of the police, particularly among the younger population in Serbia. The most effective way of achieving this goal is to ensure the legality of police work and greater visibility of police work results.

TYPES OF POLICE ETHICS CODES

Depending on the structure of the legal provisions and projected goals, police ethics codes can be classified into three groups: inspirational, regulatory and educational codes.

a) *Inspirational Code of Ethics.* The purpose of inspirational codes of ethics is to encourage employees to practice ethical conduct. These codes comprise the values on the basis on which employees should act when making ethical decisions. These values represent an ideal that is

considered ethically acceptable in society. The authors of such codes assume that employees are naturally inclined to apply ethical standards that include value statements and provide an environment in which individuals can freely make ethical decisions without prompting employees how to behave.

b) *Regulatory Code of Ethics*. Regulatory or prescribed codes of ethics provide a detailed list of ethical conduct rules. In order to determine the desired values, they apply the postulates of specific morality philosophy (utilitarian, individualistic, moral rights, etc.) and describe the mandatory conduct under specific circumstances. The rules provided in this type of ethics code are practical solutions to ethical dilemmas. According to these codes, employees do not make their own ethical decisions and conclusions; they must follow the previously established rules.

c) *Educational Code of Ethics*. The educational code of ethics may include elements of both inspirational and regulatory codes, alongside with necessary explanations and practical examples. The comments and interpretations provide the basic guidelines for implementation (Šumi, 2015, p. 4).

This classification of police ethics codes is not only an academic construct; it also points to the basic goals that need to be achieved in this area. In the next part of this paper, the author briefly presents the provisions of the current Code of Police Ethics of the Republic of Serbia.

CODE OF POLICE ETHICS: Guideline for Police Officers' Conduct

The Code of Police Ethics of the Republic of Serbia (hereinafter: the PE Code) was adopted in 2017 for the purpose of preserving and promoting the dignity and reputation of police officers, raising their awareness of the importance of respecting ethical principles and standards and strengthening the citizens' confidence in the work of the Ministry of Interior Affairs (The Code of Police Ethics is defined as a set of rules on the ethical conduct of police officers in the Ministry aimed at ensuring the rule of law; the provided rules are in compliance with the European Code of Police Ethics and other international acts related to the police (Article 1 PE Code). The Police Ethics Code regulates relations between police officers, as well as their conduct towards citizens and relations with other state bodies and institutions, non-governmental organizations and legal entities for the purpose of meeting the national and international standards and ethical principles of police conduct and supporting the rule of law (The Code of Police Ethics of the Republic of Serbia, 2017). In the provisions relating to the ethical aspects of police work, the Police Act of the Republic of Serbia (Art. 45 Police Act) refers to the provisions of the PE Code underscoring its significance.

Pursuant to the PE Code, the performance of police authorities is governed by the purpose and objectives of the police in a democratic society and the rule of law principle. Thus, acting in accordance with the PE Code, the police demonstrate their willingness, determination and consistency in performing the assigned duties in a lawful, professional, fair and humane manner, which is the fundamental ethical imperative of performing police affairs. In addition to the police officers employed in the Ministry of Interior Affairs (hereinafter: the Ministry), the PE Code is also applicable to citizens who, in accordance with the law, provide assistance to the police in performing their police activities (Article 2 of the PE Code). This provision leads to the conclusion that the Code applies not only to police officers but also to the civilian personnel who are employed by the Ministry to provide police-related public services.

Police officers and personnel are obliged to protect and observe human and minority rights and freedoms, to maintain public order and peace, to enforce the applicable law, to prevent and combat any form of crime, to provide assistance and services to citizens and the community in compliance with the Constitution, national legislation and international standards. In the event of statutory limitation of human and minority rights, police officers

are required to respect the dignity, reputation, and honor of each individual and other fundamental human rights and freedoms. When performing their police duties, police officers shall give preference to preventive action rather than repressive measures (Article 3 PE Code). This provision underscores the importance of prevention in police work and respecting the dignity, honor and reputation of each individual.

In their activities, police officers shall respect the right to equal protection of the law and ensure the exercise of the equality principle by counteracting any form of discrimination, either direct or indirect, on any ground and particularly on the basis of race, gender, nationality, differences arising from the social origin, birth, religion, political or other belief or determination, gender and gender identity, financial standing, culture, language, mental impairment or physical disability (Article 4 PE Code).

Police officers shall build their integrity and reputation on courage, hard work and unwavering professionalism, respecting the dignity of each individual and the laws of the Republic of Serbia (Article 5 of the PE Code). Police officers shall not demand and receive gifts for their work, nor shall they abuse their official position, and they shall fight against any form of corruption (Article 6 PE Code).

Police officers shall not disclose and abuse data that they have obtained in the course of performing their duties or services, which particularly refers to unauthorized use or disclosure of data that could endanger the course of legal proceedings or the rights of third parties (Article 7 PE Code). Given that protection of important data is crucial in criminal proceedings in terms of ensuring the efficient fight against crime, police officers are obliged to handle these data in line with highest ethical standards.

Police officers contribute to exercising, developing and strengthening of the reputation of the Ministry by ensuring lawful, professional and humane police conduct, making the police work and services transparent and publically assessable, and recognizing the publicity as a form of control over police activities (Article 8 PE Code). The need to inform the public about police work provides for exercising one of the basic functions in a democratic society –the right of the general public to be informed about the work/activities of state authorities.

In performing their duties and enforcing the law, police officers shall act professionally, responsibly and impartially. In order to professionally perform the tasks within the competence of the Ministry, police officers acquire and improve their knowledge, skills, attitudes and behavior through professional training (Article 9 PE Code).

The mutual relations of police officers are based on trust, respect, honesty, mutual assistance, tolerance, solidarity and collegiality (Article 10 PE Code). Although it may be implied *eo ipso*, the emphasis on the obligation of mutual respect and collegial treatment of police officers has its own ethical justification because it is a precondition for effective suppression of crime and performance of police tasks.

By demonstrating lawful, professional and ethical conduct, executive police officers provide support and model behavior to police officers and personnel, build and improve their mutual relations (Article 11 PE Code). Bearing in mind that the preservation of professional hierarchy and the chain of command within the police is necessary for the efficient performance of police activities, this provision underscores that executive police officers must demonstrate proper and exemplary conduct at all times.

Any conduct that is contrary to the envisaged provisions is detrimental to the reputation of the Ministry and the police profession as a whole (Article 12 PE Code). The Code provisions clearly condemn any unethical and other behavior detrimental to the reputation of the Ministry and the honor of the police profession.

This Code is a constituent part of the professional training program used in the course of training Ministry employees (Article 13 PE Code). Professional training of police officers would never be fully effective without these ethical principles; for this reason, the Code should be viewed as part of a broader police development process.

Police officers and personnel in the Ministry shall abide by the following standards of professional conduct: the duty to serve citizens and the community, responsiveness to citizens' needs and expectations, observance of the principle of legality and suppression of unlawful conduct, ensuring the exercise of human and minority rights and freedoms, the principle of non-discrimination in the execution of police tasks, proportional use of force and coercive measures, the prohibition of inhuman and degrading treatment, providing assistance to victims, adherence to rules of professional conduct and integrity, the obligation to protect classified information, and the obligation to refuse illegal orders and to report corruption (Article 14 PE Code).

It can be concluded that the Code of Police Ethics of the Republic of Serbia regulates the conduct of police officers in numerous situations that may occur in the course of performing diverse police tasks and duties. It is aimed at ensuring the lawful, honest and conscientious conduct of the police at all times. However, like any other legal act, the Code of Police Ethics may be improved. The next part of this paper provides an overview of the relevant recommendations of the Council of Europe and the European Union for improving the Code of Police Ethics of the Republic of Serbia.

RECOMMENDATIONS FOR THE IMPROVEMENT OF THE CODE OF POLICE ETHICS OF THE REPUBLIC OF SERBIA

Recommendations for the improvement of the Code of Police Ethics of the Republic of Serbia were made within the joint project of the European Union and the Council of Europe "*Strengthening the capacity of the police and judiciary in the fight against corruption in Serbia (PACS)*".They are provided in the *Technical Document - Expert Opinion on the Serbian Code of Police Ethics,* written by Robert Šumi, an Expert from the Council of Europe. The recommendations are grouped into several segments (Šumi, 2015, p. 4).

First, the Serbian police are recommended to consider changing their approach, from a regulatory to an inspirational code of ethics, whereas regulations can be formulated in the form of police rules. This particularly applies to the police, whose procedures, powers, rules and obligations are usually explicitly determined by law. Therefore, it would be much more appropriate and efficient if the code of ethics would focus exclusively on the mission, values, ethical principles, integrity and inspiration or motivation for police work. As disciplinary sanctions for violating the provisions of the Code are already regulated by other acts, they do not have to be included in the Code itself.

Second, it is recommended that greater emphasis be placed on ethical behavior in the context of professional behavior (Article 39 PE Code). The Code should include an integrity section (personal and organizational), a case-by-case relationship and mutual relations that are not present in the existing code of police ethics.

The third recommendation is to write the code in the first person plural, simply because it is so much easier and more effective for police officers to identify with its content. The arguments that support these recommendations are:

a) The Code of Police Ethics should focus on raising the awareness of police officers on the importance of values, ethical principles and moral behavior in everyday police practice;

b) The most effective ethical code is inspiring by nature;

c) Inspirational ethical codes emphasize the police mission in society, both personal and organizational integrity, good mutual relations and organizational climate;

d) Considering the fact that ethical behavior of employees cannot be effectively demanded but only expected, the most effective long-term measure against immoral behavior is the high moral responsibility of every individual.

If these proposals are used in the context of the development of a new code of ethics, then the first task will be the preparation of a code with core content that would truly have results in practice. The content should include all important values and virtues that reflect European perspectives, on the one hand, and the cultural features of Serbian society, on the other hand. It is necessary to achieve a general consensus of the internal police organization with the appropriate involvement of all police officers in the discussion on the content of the revised ethical code. When a consensus is reached, the next stage would be the appropriate type of preparation, realization, training and adequate monitoring of employees' behavior in accordance with ethical standards. It is really very important to be aware that simply the existence of an ethical code does not affect the behavior of employees, but that it can only be effective if employees agree with its content and purpose. This means that the preparation and adoption of an ethical code is not enough. Another indispensable part is the implementation phase, which includes all necessary internal and external communication, promotion and appropriate supervision of conduct in accordance with its provisions. The content should also be part of a special education program on strengthening the integrity of police officers that the Serbian police should implement in the future.

Therefore, the expert team suggests to the Serbian police to consider the possibility of preparing the new content of the code in close cooperation with the police union and, if possible, to publish the code as a separate publication and deliver it to every police employee.

Finally, in order to implement the above recommendations, it would be very useful to implement the intention of the Serbian police to establish a special group for the renewal or re-elaboration of the existing code of ethics (Šumi, 2015, p. 8).

The police ethics codes of Slovenia and Croatia may be used as examples of good practice in drafting police ethical codes. The Slovenian Code of Police Ethics regulates relations between police officers and relations between police officers and citizens, state bodies, non-governmental organizations and other institutions. It establishes moral and ethical standards of police work and represents an upgrade of the Code of Conduct for Public Servants in Slovenia. The Code is very short; it comprises only fourteen articles and includes general and final provisions and basic principles (respect for equality before the law, protection of reputation, incorruptibility, publicity, professionalism and independence, keeping professional secrets, mutual relations and compliance with the Code). The basic purpose of the Code is to raise awareness of police officers about the importance of respecting ethical principles and strengthening ethical and moral behavior in practice. The authors of the Code wanted to raise public awareness about the police mission and inspire all police officers to act in line with the Code. That is why the Code is written in the first person plural, without the inclusion of disciplinary regulations that are an integral part of other laws regulating the work of the police. The special appendix includes a list of values and virtues reflecting the police mission and stating that Slovenian police officers serve people, protect the lives and property of people, protect the weak from the strong, take care that all people enjoy constitutional and legal rights under the same conditions, have a high level integrity, separate personal issues from professional ones, are brave and determined even in life-threatening situations, are aware that police identification signifies responsibility and public confidence in the police, maintain confidentiality, do not abuse data and information, and always act in an ethical, legal and professional

way (Šumi, 2015, p. 7).The Croatian Code of Police Ethics is similar to the Slovenian code (Šumi, 2015, p. 7). Police ethics codes aim to direct the activities of police officers towards morally acceptable goals. It is not enough to comply with the legal provisions and perform the assigned tasks in accordance with the principles of legality. It is particularly important that these activities are in line with ethical principles, which is a precondition for the meaningful and effective application of the envisaged legal norms.

CONCLUSION

Ethics is a very complex discipline of philosophy. In this paper, ethical issues and dilemmas are not addressed from the aspect of general philosophy or philosophy of law but from the standpoint of a legal act, the Code of Police Ethics of the Republic of Serbia adopted in 2017.Therefore, considerations in this paper are limited only to the provisions of this Code and the recommendations aimed at its improvement. For this reason, the prevailing approach to numerous ethical problems raised in this paper is the normative and positive law approach. Although the justification for such an approach can be challenged, we consider it is justified, given the regulatory and protective role of legal norms in every society. This influence is certainly reflected in the ethical and moral norms.

Police officers and personnel exercise the public authority whose main goal is the suppression of all forms of crime. In addition to the professional expertise, the successful performance of police tasks largely rests on the need to respect the basic ethical principles. This obligation arises from the role and reputation of the police in society. Police actions should be driven by the common well-being. Police officers should be fully aware of it in performing their daily tasks. A better presentation of the police work results would certainly contribute to increasing the confidence of the Serbian citizens in the work of the police, which would in turn serve as an incentive for police officers and personnel to prevent and counteract unethical conduct.

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QUALITY MANAGEMENT IN POLICE STATIONS IN THE REPUBLIC OF SERBIA[1]

Dalibor Kekić, PhD
University of Criminal Investigation and Police Studies, Belgrade
dalibor.kekic@kpa.edu.rs

Miloš Milenković, MA
Sector for Emergency Management
milos10jul@gmail.com

Abstract: Quality or quality management is an organizational segment in connection with emphasis placed on the goal of achieving higher productivity of different organizational systems. Organizations, both productive and serviceable, strive to achieve a higher level of quality in their business by implementing accepted standards. Besides, each business area recognizes the different standards that need to be applied, both at national and global level. During a complex process, from designing needed quality in order to have usable quality, the main goal to achieve is maximizing profit or to maximize number of satisfied users of services. The police organization in the Republic of Serbia, through its organizational units including police stations, aims at achieving the highest level of citizen security. Implementation of the concept of quality and quality management during police and other affairs within the police stations would serve as a useful tool for improving the work process. The practice shows that priority at the police stations in the Republic of Serbia is given to quantitative work results, without significant application of a qualitative approach. Adapted application of the quality management concept in the police stations in the Republic of Serbia would contribute to improving the working process from several aspects, such as greater efficiency and effectiveness, as well as a percentage increase in the satisfaction of citizens by the operation of employees in police stations. The implementation method would also imply the implementation of some of the applicable ISO standards in the field of security.

KeyWords: quality, quality management, police station, standard

INTRODUCTION

1 This paper is the result of the research on project: "Management of police organization in preventing and mitigating threats to security in the Republic of Serbia", which is financed and carried out by the Academy of Criminalistic and Police Studies, Belgrade - the cycle of scientific projects 2015-2019. Paper is result of research within the project No. 47017 Security and protection of organization and functioning of the educational system in the Republic of Serbia (basic precepts, principles, protocols, procedures and means) realized on the Faculty of Security Studies in Belgrade and financed by Ministry of Education and Science of the Republic of Serbia.

Quality management is an area that is increasingly included in the production and service sectors. One of the primary goals of organizational systems is to maximize the number of satisfied users using products or services. However, it is necessary to achieve the required level of characteristics that users expect from offered products or services. In this way, the quality and quality management concept has been developed.

The concept of quality management is rather widespread and increasingly applied in police organizations on a global level. Police as an organization want to achieve as many a degree of safety as possible. In this way, it also fulfils the citizens' satisfaction. However, in this process it is necessary to have measuring instruments in order to determine whether they are in accordance with predefined plans and goals. The concept of quality management should serve as a basis for improving the work of police organizations in the part of the control mechanism. Defining different levels of quality determines what is important for the work of a police organization. Moreover, in this way it is possible to determine separate segments that need to be monitored and controlled in order to improve work and achieve higher level of safety and citizen satisfaction.

The police organization in the Republic of Serbia endeavors to achieve the highest level of satisfaction among citizens. The goal is to provide a safe environment in which citizens will feel safe. In this direction, efforts are being made to implement modern methods and techniques of management of large organizational systems, such as a police organization. However, there are some areas in which Serbian police still need to work on improvement. One of the areas defines the way of determining what the quality of the work process is, how to determine and measure it and use the results for the purpose of improvement.

The current situation in the police stations in the Republic of Serbia indicates that little attention is paid to quality management and the implementation of this modern management concept. Namely, principles based on the quantification of effects continue to be in use. In such situations, it does not matter whether it has been done qualitatively or more precisely if the standards that are expected are met. Furthermore, the current security standards are not applied in the work of police stations. The work of police officers at police stations in Serbia is based on instructions and written instructions received from the central police departments of the Ministry of Interior. In this way, it is only possible to monitor work in police stations without clear and measurable parameters that will later be used in quality control.

With the aim of raising the offered services or the unhindered functioning of the security system in the part related to the work of police stations, it is necessary to define how to implement and later use the concept of quality management in police stations. For this purpose, existing standards that could be implemented in the police stations in the Republic of Serbia can be used. Examples of positive practice of police organizations where this is largely used would be the way of applying the concept of quality management in those stations where it is not used.

THEORY OF QUALITY MANAGEMENT

Firstly, we have to define the term quality. According to Feigenbaum quality is "the total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service will meet the expectations of the customer" (Feigenbaum, 1961). This definition of quality is interesting because it brings into consideration departments other than manufacturing which contribute to the quality of product and service provided by the company to meet the expectations of the customer. It is perhaps worth contemplating whether meeting the expectations of the customer is a higher level

of achievement than providing a product or service that is fit for purpose (Knowles, 2011). Based on this definition, it is clear that the emphasis on quality is to meet the expectations of users of products or services. In this way, quality is proven and at the same time it achieves the most important goal of the organization, maximizing profit or customer satisfaction. Then, according to Goetsch and Davis quality is "a dynamic state associated with products, services, people, processes, and environments that meets or exceeds expectations and helps produce superior value" (Goetsch & Davis, 2010). This definition is reasonable attempt to draw together the themes of a number of definitions of quality and create a unifying definition. The most noteworthy addition to the previous discussion is the idea of dynamism. By this they mean that acceptable levels of quality are not fixed, but change with customers' experiences and view of the world (Knowles, 2011). Based on the second definition, the dynamic quality characteristic is emphasized. It means that quality is needed to match the current needs of the market and end users. This quality characteristic has also to be emphasized in the case of the implementation and use of the concept of quality in the work of police stations in the Republic of Serbia. It is necessary to monitor the changes in the security environment, as well as to innovate the processes of work so that the citizens feel safe and satisfied with the work of the police officers. In addition, the term effectiveness can be closely linked with the term quality in the work of police stations. Starting from the fact that the quality of organizational processes can be measured according to their outcomes, effectiveness can be defined as the basic criterion for the quality of products and services that result from these processes. However, even when the organization achieves exceptional quality of products and services, its performance cannot be determined without measuring its efficiency. In short, quality is primarily dependent on effectiveness, while success is a function of levels of effectiveness and efficiency levels. In addition, the level of effectiveness of the police organization depends primarily on how police work is assessed by citizens as users of its security services, while the level of its efficiency depends on the spent resources per unit of time (Stevanović, Kekić, 2017).

Based on the definition of quality, it is necessary to define the broadened concept of quality management. Quality management is a functional area of management and is increasingly used in the modern world of business. In theory, there are many definitions of quality management. Quality management is both a technique and a methodology at the same time. It is not an isolated activity added to manufacturing and other activities of a factory, but it represents an effective means for realizing such activities (Cruchant, 2003). This definition implies that quality management does not relate exclusively to production, as many experience it. Namely, at the beginning of the use of this modern management concept, quality management was exclusively linked to the production and characteristics of raw materials, semi-finished products and end products. However, later it was noted that the quality needs to be managed in the service process. This leads to the development of standards that directly relate to services. Firstly, standards relating to those types of services that have the highest primacy and degree of use have been developed. Furthermore, the need for using the concept of quality management has been recognized in other areas, such as in the security system and its separate parts. More precisely, modern police organizations around the world begin to implement the current standard and continue to implement the concept of quality management. Moreover, there is a new way of using quality management. That is total quality management. It is very useful and should be interesting for work of police organization and police stations as organizational units. Standard ISO 8402:1994 has definition of total quality management (TQM) as a "management approach of an organization focused on quality, established on the participation of all its members and aimed at long term success based on customer satisfaction and benefits to the members of the organization and society" (Standard ISO 8402:1994, 1994).[2]On the other hand, standard ISO 9000:2000 does not offer a definition of total quality

2 Standard ISO 8402:1994. (1994)

management. It is important for police stations to use total quality management. Police stations in the Republic of Serbia include different police jobs, such as police of general jurisdiction, traffic police, criminal police and legal affairs. Those jobs have some connections. On the other hand, police and other officers working in police stations in some of the mentioned areas have to follow different procedures. Therefore, it is necessary to have a framework which will be used in order to have the same work process in all police stations in the Republic of Serbia. Accordingly, standards and quality management should be a useful tool for unification of police station operations and activities.

ANALYSIS OF THE CURRENT STATE OF IMPLEMENTATION OF QUALITY MANAGEMENT IN THE WORK OF POLICE STATIONS IN THE REPUBLIC OF SERBIA

Before the beginning of the analysis of the current state of use of the concept of quality management in the work of police stations in the Republic of Serbia, it is necessary to define what constitutes one police station and what jobs it has in charge. According to the Police Law, the police station directly carries out police and other internal affairs and cooperates in the area of the municipality to whose police department it belongs. The police station submits reports on work and state of security once a year to the assembly of the local self-government in the area where it is located (The Police Law, 2018).[3] Police stations, in the organizational context, are within one of the police departments in accordance with the territorial affiliation. The Serbian police are organized as a unique organizational system, which has the basic organizational units at the headquarters of the Directorate (departments) as well as the organizational unit outside its headquarters. Territorial organizational units at the coordinating level (regional police departments outside the headquarters) and at the operational level (police stations) are territorially differentiated and formed to carry out all internal affairs in a particular territory. The police station is composed of a crime section or group, one or more police departments of general jurisdiction and a section of administrative affairs, while some police stations also have traffic police sections (Cvetković, 2010). It should also be noted that a large number of police stations operate in Serbia in accordance with the territorial and administrative division of local self-governments for which police stations are established. On the basis of the above, there is a clear need for the unique operation of police and other officers working within the police station. It is expected that the police officers work in the same manner in the police stations in local self – governments of Secanj, Zemun or Kursumlija.

A police station carries out tasks that are of key importance for security at the local level. However, a number of obstacles hinder achievement of a high level of security and acquiring the confidence of citizens. It should be concluded that the head of the police station, as the top manager, does not have an easy task. The head of the police station may have a deputy if it is a police station with a pronounced issue (Subošić, 2013). The head of the police station, as well as the rest of the management, would have fewer obstacles in their work with the existence of instruments that clearly define the operation of police and other officers. They could also monitor work, determine irregularities, and provide suggestions for improvement. In this direction they can help quality management.

At present, very little quality management characteristics are used in the operating police stations. Namely, there is no full application of any international or domestic standards that are applicable in the area of safety and security, or in the operating police stations. In-

3 The Police Law: "Official Gazette of the Republic of Serbia" no. 6/2016 and 24/2018

struments that serve as a measure of whether something has been done in accordance with the police or other laws, or whether there was the excessive use of force or coercion in the work of a police officer, are the only rulebooks or other bylaws relating to the work of police stations. It is certain that during the drafting of the new law on police, as well as the bylaws accompanying it, some of the segments of the international standards were implemented. However, there is no application of standards and quality management in its basic form in the work of police stations in the Republic of Serbia. The quantity is very important in the police, and it is further counted as a quality. For example, it is of the utmost importance how many misdemeanor reports a police officer has written or how many persons he has asked to show their ID cards. However, this is not a guarantee of quality. An additional problem is that there are not the same security issues everywhere, and not all of the police stations are of the same category. There is a category 1 to 3 of police stations, and therefore they cannot be regarded as the same quality of the work done by a police officer in the 1st and 3rd category police stations. Despite its organizational hierarchy and centralization, the police have features of functional decentralization that most often do not suffer from "waiting for orders", but it determines the rights and duties of each police member to independently and in accordance with its powers take the appropriate measures within its jurisdiction. So, every police officer in the law envisaged situations, without waiting for the order to decide on the identification or arrest, or using coercive means, control drivers and vehicles, and so on. In this regard, it should not be considered that between the linear components of organization and functional decentralization (decentralization of police powers) there is a contradiction in the police. On the contrary, they are complementary and characterize the essence and character of the police profession (Stevanović, 2003). The previous fact is characteristic for the work of police officers who are part of the primary tasks of police stations. A police officer, for example engaged in the security sector, can handle and enforce police authorizations without charge. Thus, he can do an unlimited number of identifications on a daily basis, as well as a traffic police officer who can perform an unlimited number of routine checks. In most cases, this will be considered as a quality job because someone has accomplished more than a dozen of identifications of persons or routine checks of vehicles. However, this type of activity of police officers can be achieved without any effects. More precisely, there is no quality in the broadest sense. On the other hand, there are examples that a police officer of the criminal section of a police station has been working for months to detect a serious criminal group. His work cannot be seen in weekly or monthly reports. But at the end of his activities, he can reveal a criminal group and highlight some of the more difficult forms of crime, thereby contributing to raising the level of community safety. Traditional leadership in the police emphasizes: (1) the obedience of police officers in relation to the superior, applying the doctrine of "command and control", (2) guiding executives for goals (effectiveness) at the expense of efficiency, and (3) caring about how the public will respond to work and results of police stations (Manning P.K.,1978). However, in most cases, the management of the police stations will regard dozens of insignificant identifications every month as a high-quality work rather than the work of criminal inspectors who are invisible in the long run, but in the end they have a significant effect.

One of the reasons why there is a problem in determining what a quality of work is in the work of police stations is the lack of standards as a measuring instrument. While in private and profitable security organizations it is generally simple and measured by profit, efficiency (effectiveness and efficiency) in public and non-profit security organizations is measured very difficult. The main reason for this stems from the fact that the goals and results in profit organizations are most often expressed quantitatively in monetary terms, while in non-profit organizations they are expressed qualitatively, not sufficiently precise in categories that are not simply measurable (Stevanović, 2016). More precisely, in the police stations there are no written documents to regulate what a police officer should do in the course of one month. In

practice, everything goes from dispatches sent for example from the Police Directorate, as hierarchically superior organizational units for the work of all segments of police stations. Furthermore, the head of the police station and its selected management team are guided by the same dispatches as the instructions for the handling and control mechanisms. These documents usually require reports of what has been done. Most of the police stations heads in the Republic of Serbia, in order to survive their functions, think only about reporting, firstly considering the quantity of realization without excessive emphasis on quality in work. The situation would be significantly simplified if a standard is used that would precisely determine what the quality is, as well as the manner of determining the work and operation of police officers in police stations that would be considered as high quality. The important question is how to control quality, for example to control preventive work. If you do not have criteria as valid qualitative norms, you do not know what quality is. What is the most important in the police is process of work. On the other hand, the achieved results are not of the utmost importance and do not have the highest priority. In the police stations in the Republic of Serbia, it is important that police and other officers adhere to the rules of the work, not to exceed the authorities, to come in time to work, etc. Otherwise, practice shows that somebody who has arrested the main criminal after professional investigation would not have special treatment and opportunity for advancement. The new Police Law defines that the "minister or a person authorized by him may, in addition to the achieved work results, which significantly exceed the normal level and the quality of work engagement, in particular, increase the employee's basic salary coefficient to 20% in the month in which it is realized" (The Police Law, 2018).[4] But, problem exists when an authorized person wants to make decision who will take increased salary coefficient. Without standards the only way is to reward someone who has achieved goals such as quantitative results of work. Furthermore, the new Police Law emphasizes the career advancement. Career advancement has precisely defined criteria and gives opportunity to find the best police officers and to put them at management positions. Additionally, these criteria should be used as quality dimensions. The career advancement model in the Serbian police is at the beginning and time will show whether it will be fully implemented or not.

HOW TO IMPLEMENT QUALITY MANAGEMENT IN THE POLICE STATIONS IN THE REPUBLIC OF SERBIA

After the presented theoretical part and the current situation in this part of the paper, the possibilities of implementation and building of a quality management system in the work of police stations in the Republic of Serbia will be indicated. During the construction of each management system, attention must be paid to each of the components from which it will be made. At the beginning, it is necessary to determine what the work of a police station in Serbia is consisted of. More precisely, all work processes must be identified with their input components. In this way, an impression is made about what an organizational system such as a police station is doing. Like all other services, as well as services provided by police officers to citizens at the local level, police station has its own characteristics. One of the important features that distinguishes it from others is that the work of police officers is not often visible, and it must be kept in mind when creating a quality management system. In addition to determining the work processes, it would define the inputs of the system, as well as all the human and material and technical resources that are used in the functioning of a police station. One of the useful methods that can be used involves four defined levels of quality, which are required, designed, realized and used in quality. Processes of defining quality transform the

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required into designed quality. Processes of quality creation transform designed quality into the realized quality. The process of determining the quality determines the realized and used quality. Required quality is the quality that the user expresses (defined by the supplier, if not shown) in order to satisfy its (users') needs (Živković, 2015). In the case of police stations in the Republic of Serbia, defining the user's requirements would not be an easy job. Namely, for this purpose, a huge survey could be conducted on what citizens expect from the work of police and other officers who work in the police station. However, even in this case, organizers should be careful with the results. It is probable that among the respondents at least 10% of them may be criminals or close to the criminal environment and they always say that the police do not perform their duties well. Moreover, at least 10% of the older age group may answer that police stations do not work adequately. When we want to determine the required quality, it is necessary to be guided by the opinion of the relative groups of citizens who need to feel safe in their local community. The next step that is expected is to define designed quality. Designed quality is the quality that is defined in the construction - technological documentation (Ibid). However, it is hard to apply this definition of designed quality to the work of police stations in Serbia. However, in the modified version, the designed quality would include documentation that precisely defines the items from the previous step and the determination of the required quality expected of police and other officers in the police stations. For example, if the preventive work in the security sector which reduces the level of criminal acts of robbery and aggravated theft as a required quality is emphasized, this will be processed with details in order to get the designed quality. This means that the procedure for the work of police officers working in the security sector, and all the activities they have to fulfill, must be specified in order to reduce the rate of the previously mentioned criminal acts as the ultimate goal. This would be done for the whole work of a police station. This work would be carried out by the Police Directorate. There should be a difference in determining the required and designed quality of the police stations of different categories. Once the designed quality has been determined, the basis for the realization will be achieved. Before that, it should be emphasized what can be used to define the designed quality. These are international and domestic standards. Increased awareness of the importance of adopting international standards in the field of security has been influenced by an increase in the number of complexity, unpredictability and consequences of crisis and emergency situations in the world: terrorism, natural disasters, technical and technological disasters and disasters, etc. (http://utv.isotc223.org/organization/DCCG/, 2018, 29 May). In this case, in addition to a number of other standards in the field of security, the implementation of the ISO 9001 standard should be considered. The ISO 9000 family addresses various aspects of quality management and contains some of ISO's best known standards. The standards provide guidance and tools for companies and organizations which want to ensure that their products and services consistently meet customers' requirements, and that quality is consistently improved. Particularly important for quality management in security organizations is the integration of the ISO 9000 system and the following formal systems of standards:

- ISO 14000, EMAS: Environmental Management;
- OHSAS 18000 and BS 8800: Occupational Health and Safety;
- ISO 17000 and SRPS ISO 31000: Risk management;
- ISO SRPS 22300: Social Security - Business Continuity Management Systems;
- SRPS A.L2.001 (002, 003): Social Security - Private Security Services; Emergency Management;
- ISO 18788: Management System for Private Security Operations;

- SRPS ISO / IEC 27001: 2014 Information Technology - Security Techniques - Information Security Management Systems. (Stevanović, 2016)

However, ISO 9001 sets out the criteria for a quality management system and is the only standard in the family that can be certified (although this is not a requirement). It can be used by any organization, large or small, regardless of its field of activity. This standard is based on a number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continual improvement. Using ISO 9001 helps ensure that customers get consistent, good quality products and services, which in turn brings many business benefits (International organization for standardization, 2015). What is important is that all principles related to quality management and part of this standard can be implemented in the work of police stations in Serbia. In practice this would involve the elaboration of this standard by the Police Directorate. Subsequently, a more complex process would imply that each of the police stations perform the certification process in accordance with the ISO 9001 standard. Moreover, this process would be extremely long, but it would be a quality guarantee. There are foreign cases of police stations that have successfully resolved this process. As a useful tool in this process, an instruction that has already been elaborated by the International organization for standardization ISO can be used. This organization developed Guidelines on the application of ISO 9001:2008 in policing organizations. The main subjects of these guidelines are:

- The task of maintaining citizens' confidence in their policing organizations is of major importance in all societies, due to the vital role of these organizations in maintaining societal stability and in creating a healthy environment for development and investment,
- The decision of a policing organization to adopt and implement a quality management system is a strategic choice, where quality is emphasized through the delivery of policing services,
- A quality management system can help to direct and control the activities, processes and resources of a policing organization in order to satisfy its internal and external customers,
- A quality management system can provide the structure, resources and documentation needed by the policing organization, as well as the processes that the organization follows. (International organization for standardization, 2013).

In addition to these Guidelines, the standard which should also be emphasized is ISO 9001:2015. This standard sets out the criteria for a quality management system and is the only standard in the family that can be certified (although this is not a requirement). It can be used by any organization, large or small, regardless of its field of activity (https://www.iso.org/iso-9001-quality-management.html, 2018, 31 May). There is also the standard SRPS ISO 9001:2015 as transformed Serbian version of ISO 9001:2015. Following the implementation of the standards, the next quality category is realized quality. The realized quality is the quality that is determined on the final product or service during the provision of services or on their parts (Živković, 2015). It implies that police and other officers at police stations conduct work processes after the certification of the adopted standard has been carried out. It is expected that in this part it will achieve greater efficiency and effectiveness compared to the previous period, which is precisely one of the basic goals of standardization and implementation of the concept of quality management. And the last phase would involve determining used quality. Used quality is the quality that the user shows during the use / consumption of the product or providing services (Ibid). Considering the above mentioned, it is clear that the implementation of the concept of quality management in the police stations in the Republic of Serbia would not be an easy task. It would be a long-term process. In this process the police organization should have the significant assistance and support provided by the Institute for

Standardization from Belgrade. However, it is expected that this would result in higher quality work and greater satisfaction of the citizens by the work of police and other officers in the police stations.

CONCLUSION

Quality management is increasingly being applied in the institutions belonging to the security sector. It has been noticed that the implementation of standards in the field of security is achieving better results. One of the areas where the implementation of the quality management concept is becoming more and more important is the functioning of police organizations. As one of the key organizational segments in the work of the police organization in the Republic of Serbia, the police stations are recognized. The concept of quality management can be applied in a modified form in the police stations in Serbia. The current situation indicates that more attention is paid to the quantity of work done, without thinking about quality. An additional problem is the lack of a basis for determining what constitutes the quality of the work of police and other officers who are part of one police station. The only way is to implement some of the international or domestic adopted standards. Based on international experience, the implementation of ISO 9001 standards is recommended. There are examples of police stations around the world that have successfully gone through certification process of this standard. Improvements in work are visible. However, the implementation of the ISO 9001 standard in the police stations in Serbia would be a complex process. One of the main obstacles that may arise is the lack of financial resources. If the number of police stations in Serbia is taken into account and considering that each of them has to go through the certification process in order to fully apply the standards and the concept of quality management, large amounts of money needed to be invested in this process will appear. On the other hand, it is currently necessary to invest financially available funds in the procurement of material and technical tools used by police and other officers in police stations. However, we should not forget the effect that would be achieved by implementing a quality-based standard. In this way, all the police stations would work with same procedures, in accordance with the previously stated needs of the citizens. It is important to express activities aiming at quality rather than a simple quantity of work. In this way, the traditional practice of prioritizing the number of applied police powers that apply without effect will be eliminated. Additionally, once implemented the ISO 9001 standard does not mean that it stops this process. On the contrary, this is a continuous process that involves updating and continual innovation of the concept of quality management in line with contemporary trends in this field.

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HUMAN RESOURCE MANAGEMENT IN THE POLICE- Strategic and Legal Basis of Career Development –

Svetlana Ristovic, PhD, Scientific Associate
University of Criminal Investigation and Police Studies, Belgrade

Abstract: In the Ministry of Interior (police), instead of personnel management, human resource management is established. Hence the need for strategic treatment of human resources in the police as the most valuable and most expensive resource that requires long-term planning and management.

An indispensable segment in the process of human resources management is the establishment and implementation of the career development of police officers based on equal opportunities, transparency of procedures and clear criteria for career advancement. This system should lead to an open and healthy competitiveness among police officers based on their competence and achieved results of work, which will ultimately result in the right people being in the right (working) places, as well as their commitment and motivation to work, specialize in their respective fields and in leadership positions.

Career development links and integrates individual and organizational goals and interests, and as such contributes to the professionalisation of the police and the improvement of their quality and responsibility. Organizations predominantly realize their role in development of professional career through the human resources service. New content, new function and a new management modality in the police require a new management style, a new atmosphere and organizational culture, as well as different individual competencies of managers, human resources experts and all employees.[1]

Keywords: police, human resource management in the police, career development and advancement in the police.

INTRODUCTION

The Ministry of Interior has recognized the need for strategic treatment of human resource management, as it is the most valuable and most expensive resource that requires long-term management. Therefore, since the beginning of the reform process within the Ministry, it is trying to transform the traditional personnel management into human resources

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management. This management process has a more humane relationship with employees who are increasingly treated as a subject in the work process, rather than a management object.

In development documents of the Ministry, the establishment of a modern human resources management system has been recognized as a strategic goal, and by forming a special Human Resources Sector and creating a normative framework for achieving the function of human resource management, it has seriously entered the modern concept of human resources management.

Career development is undoubtedly in the function of building a strategic, modern and professional human resource management function that is oriented towards the achievement of goals of the police, but all of their members also. Human resources in the police are becoming regarded as their most important resource, and man and his potential as a value with no alternative. As such, it is the key to the efficient and effective work of the police. Therefore, more and more attention is dedicated to establishing and implementation of career development and career advancement of police officers. In the model of career development of police officers, which has clearly defined and has transparent procedures equal for all employees, the conditions for progression are tightened and at the same time the conditionality of further advancement with professional development and the results of work is emphasized.

Police organization has a very important role in the development of a professional career and this role is achieved by performing the functions of police management assisted by the Human Resources Sector. This sector should implement innovative programs and undertake concrete activities to provide support and help individuals to manage professional careers in order to achieve their own interests and goals, while at the same time achieving the goals of the police organization. Therefore, the realization of the human resource management process must be based on the theoretical postulates of this new kind of management, as well as good national and foreign practice. Likewise, strategic determination and legal definitions are necessary, because any kind of work with people, especially the management of their careers, does not endure any improvisation and voluntarism. That is why this paper will be about 1) theoretical and practical starting points, and 2) the strategic determinations and legal definitions of career development and career advancement in the police of the Republic of Serbia.

THEORETICAL AND PRACTICAL STARTING POINTS ABOUT CAREER DEVELOPMENT AND CAREER ADVANCEMENT

In theory, there are two basic systems of career advancement: 1) an open system of advancement in which a civil servant's advance is primarily based on an assessment of his ability to perform higher-level tasks by a senior manager or body empowered to make such a decision, and 2) an automatic system of advancement in which an official makes progress independently of the will of individuals or any bodies, because his advance depends exclusively on the fulfilment of a certain objective, legally prescribed criteria (e.g. time spent in service, gaining more professional qualifications, etc.). Since both systems of advancement have their advantages and disadvantages in practice, their combination is most often applied.

Career development implies the evaluation of objective criteria for advancement (education, work experience, expertise, annual evaluation, results of work etc.), without accepting political, family, clan and other similar criteria. It is based precisely on the stability of the position and career development opportunities through career advancement in titles and salaries, which take place on merit. It is a merit system that encourages the system of advancement and rewarding according to abilities. Contrary to such a system, it was a prey system that implied

that candidates are received in the administration not because they have qualifications for a job, but because of party affiliation.[2] The deviation from such a system has been made in our civil service system by separating the category of functionaries from the category of civil servants, as well as by clearly determining the circle of faces belonging to the so-called political layer in the ministries.

The career term has several meanings. In everyday use, it can mean advancement, profession or sequence of jobs in the working life (Robbins & Coulter, 2005: 299). In this paper, it will be defined as "a series of individual work roles. Traditionally, this word only refers to persons who perform managerial or professional tasks, but are now increasingly used in the general sense, to describe the working roles of employees. The career's word was also used to mark upward movement and advancement in working roles" (Torrington et al., 2004: 443).

Career planning is an individual process in which an individual becomes aware of himself, his/her knowledge, skills, abilities, constraints, aspirations and consequences, identifies goals in his/her career and programs his/her training, work and other development programs in order to achieve the set career goals (Gutteridge, 1986). It is a process of independent assessment of one's own abilities and desires.

Career success is viewed by the individual's eyes and can be defined as a career satisfaction through the attainment of personal goals related to the work, and within the contribution of the organization (Torrington et al., 2004: 443).

Career management is a process in which the organization's management, planned and organized, monitors, evaluates, allocates, directs and develops employees and their potentials, in order to ensure the necessary number of qualified people and the optimal utilization of their knowledge, skills and abilities in order to achieve organizational and individual interests and goals (Kulić, 2005: 293). Or, a shorter, organizational process of preparing, implementing and controlling career plans of employees.

Career development is a process in which numerous, interconnected and coordinated individual and organizational activities take place, in which employees and organizations appear as partners in the improvement and development of individual careers (Kulić, Milošević, 2014: 244). Career development aims to link the needs, knowledge and skills of employees with the existing and future needs of the organization – the right people at the right moment in the right place. It is a continuous, organized and formalized process that is based on the assumption that people are the most important resource in the organization (Leibowitz, 1987).

Human Resources Sector of the Ministry has a career tracking of employees in its area of work, from the moment of employment, movement within the Ministry, until the end of the working life. This is in accordance with Article 3 of the Regulation on Career Development of Police Officers ("Official Gazette of the RS" no. 11/2017) which determines that the organizational unit responsible for human resources affairs is in charge of planning, implementation and supervision of the implementation of the career development of police officers, in cooperation with the organizational units of the Ministry.

A serious approach of the Human Resources Sector to the development of a professional career of employees can provide multiple positive effects for both individuals and the organization. Career development is closest to planning and training of employees.

Career development programs have different effects on different groups in the organization: employees, managers, organization as a whole and the human resources sector.

This will have multiple positive effects for employees, they will receive significant help in making decisions about their own career, enriching the job and increasing job satisfaction,

2 This system was applied in the administration until the 19th century, but in recent time, the prey system appears in totalitarian and ideologically exclusive regimes of power.

better communication with managers, more realistic goals and expectations, better feedback on performance achieved, information on organization, greater personal responsibility for their own careers, and more.

Regarding managers, they develop skills in managing their own careers, retain quality people, have better communication, more realistic planning, better understanding of the organization and they gain a reputation to encourage the development of their people and to "care" about them.

Managers have an indispensable role in the career development of their subordinates. Unfortunately, managers often do not recognize this role, nor do they see it as part of their responsibility, considering that only the Human Resources Service is responsible for the career development of employees. In addition, managers are often guided by their own interests to retain good workers, rather than encouraging and supporting their development elsewhere.

They are efficient for the organization if they result in better use of employees' skills, better information at all levels, better communication in the organization, keeping quality people, developing the image of the organization which takes care of employee advancement, clarifying the goals of the organization, then making the organization more attractive for potential workers, strengthens the image of the organization by showing that it can recognize the needs of employees; then, it is very likely that such an organization will encourage employee commitment and motivation, improve the results of the work because employees are able to see movement and advance in their work (Leibowitz et al., 1986: 7; Torrington et al., 2004: 443-444).

For the Human Resources Sector, all the positive effects pertaining to the organization as a whole can relate to this sector, but they also manifest themselves in establishing a stronger relationship with line managers, which enables faster implementation of the planned ideas and tasks. In addition to this, in order for career development programs to be successful, it is necessary for it to be integrated and supported by other human resource management activities, since they all have the same function or goal, which is to harmonize the interests and needs of individuals and organizations. Human resource experts in the police must be characterized by entrepreneurial, strategic thinking and management, the ability to adapt to the continuous changes in the internal and external environment.

In practice, the Human Resource Sector can intervene in career development by applying different programs. By applying specific programs in career development practice, there are systematic efforts to help individuals manage their own careers, helping organizations to achieve their goals, for instance, self-assessment tools (workers fill in the exercises in a career guide and go to seminars before meeting with career counsellors); individualized counselling (meetings with professionals who help workers evaluate their own work skills and abilities); information services (benefits that workers can use to get to know new career options and how to get ready for such new jobs); organizational programs for grading (systematic testing and advice to workers to find out more about their skills and abilities and on the basis of results put workers at the places that best suit them); programs for finding a new job (benefits that help workers who are no longer needed) (Grinberg & Baron, 1998: 210-211). There are also paths and career networks (a range of work roles and positions determined by the content of a job, by which the individual can move); fast programs (development and retention of workers who achieve high work results); management support (not just appointing staff, but also providing support for career development of current employees); career counselling (direct manager, HR staff, and even professionals outside the organization can play the role of advisor); career workshops (usually conducted outside the organization and offered as private programs that help individuals to assess their own strengths and weaknesses, values and interests, in discovering career opportunities, etc.); self-learning instructions (represent an alter-

native to workshops, and the structures and frameworks contained therein can help in career planning and development); career centres (where you can get organizational and external information related to career); evaluation and development centres (using the type of assessment: passed/not passed, but the essence of it is in action plans and career development; assess the strengths and weaknesses of the individuals and provide feedback, as well as development plans so that everyone can use their potential to the maximum) (Torrington et al., 2004: 453-455). It is also possible to provide each employee with a personal career development budget that could be used to find out about career development opportunities and personal development; encourage employees to temporarily work in different jobs to better understand their strengths and weaknesses; organize courses and programs for career and development, alone or through cooperation with police education institutions or other higher education institutions, as well as by engaging various consultants; organize teams of employees from the same or different departments who meet occasionally in order to exchange experiences and support each other in achieving the goals; ensure the availability of various computerized online and offline programs to improve organizational career planning (Dessler, 2007: 202-203).

Each of these programs has the goal of helping employees to fully determine their career goals and to look at the directions and opportunities for achieving them. This approach enables the organization to fully manage the career development of its employees by having an insight into their "history" in terms of training, competencies, development plans and forthcoming career planning deadlines, and, if necessary, to organize various courses, make the necessary reassignments, etc.

The career development system in our police system is new and to ensure that it would not be just a letter on a paper, experts and managers in charge of human resources management have to devise different initiatives and specific programs based on them that will contribute to career advancement achieving its full implementation in the Ministry of Interior.

Career monitoring of employees from the moment of establishment, through the continuous monitoring of the movement of police officers through service, until the termination of employment, will lead to the detection and elimination of shortcomings in the work of police officers, encouraging better results of work, creating conditions for proper decision-making on advance or additional rewarding, referring to professional development or additional training, imposing sanctions, and even termination of employment. Precisely because of all these consequences, the establishing of a career development system in the police will eliminate voluntarism and abuse, either in terms of someone's unjustified favour or marginalization, and will affirm the knowledge, expertise, experience, work results, personal and professional integrity (Ristović&Nikač, 2017: 88).

THE STRATEGIC ORIENTATION AND LEGAL DEFINITIONS OF CAREER DEVELOPMENT AND CARRER ADVANCEMENT IN THE POLICE OF THE REPUBLIC OF SERBIA

In the Development strategy of human resources in the Ministry of Interior (http://www.mup.gov.rs) the need is recognized to establish a human resources management process and the values on which the human resources policy in the police should be based. These are: professionalism, quality, teamwork, transparency, trust, individual responsibility, gender equality, continuous learning and integrity. From the stated values, it is concluded that the human resources management in the Ministry is oriented towards humanistic goals and principles, to emphasize the realization of individual, not only organizational goals, advocating for decen-

tralization and team work, that it is directed towards the future in seeking adequate solutions and advocates activating all the available potentials of its human resources. This approach to human resources management leads to the strengthening of organizational and individual performance and can provide a measurable contribution in solving current security issues.

The Development Strategy of the Ministry of Interior (2018-2023) recognizes human resources as the most important resource of the Ministry and emphasizes the investment in the development of human resources capacities as a special priority in its future development. This is because the Analysis of the current situation in the Ministry identified more inconsistency and inefficiency in human resources management. For example, the problem of understaffed units is highlighted in some areas of work of the Ministry due to the expansion of jurisdiction of individual organizational units, and therefore an increase in workload, but also because of the decision to ban employment. A special problem is the departure of personnel in the segment of deficient occupations (Development Strategy of the Ministry of Interior, 2018: 35). The human resources management system needs to recognize and overcome these problems in a timely manner, with an adequate employment policy, career development and retention of the most skilled and dedicated staff, which is a particular challenge given their availability and value.

This Strategy specifies that the Human Resource Sector will continue the process of development with its new functions, and will contribute to strengthening the integrity of the police through the development and implementation of transparent and impartial procedures, personnel planning, objective recruitment and selection, performance appraisal and employee competence that affect career development and advancement of the best quality.

By this definition, human resources management is imposed as a strategic organizational function and a trigger for changes in the basis of which there will be the creation of policy in the field of human resources, their planning, development, training, employee safety, job design, performance management and careers and similar. This will contribute to continuous attracting of high-quality police officers and managers and creating organizational, normative and material conditions for the development of their competence, dedication, training, responsibility and motivation for stay, work and develop within the police. In that sense, it is necessary to synchronize and integrate the projections and goals of the security policy and the resulting police programs and plans with the expectations and needs of the members of the police. This requires changing the role of human resources management from operational to strategic, reactive to proactive, administrative to consultative and functional to business.

A significant segment of this function is the career development and career advancement of police officers that are based on legally prescribed conditions and which should eliminate arbitrariness of managers, as well as the uncertainty and apathy of employees for their careers. Career development implies that the position of police officers and other employees in the Ministry should be based on their capabilities and performance, which means, on the one hand, depolitization and, and on the other hand, guarantees the rules for advancement (Talijan et al., 2013: 345).

Human resources management will enable, through career development, recognition and development of the professional capacities of each police officer individually and, consequently, retain the best and professional staff. The establishment and implementation of the career development system will affirm the knowledge, expertise, experience, work results, personal and professional integrity. This is especially important, because today's security situation imposes a high-performance imperative for the police and for individuals working in it.

In order to achieve this need, in the function of which human resources management is established and developed in the police, scientific and expert support is necessary, i.e. human resources management as "an interdisciplinary science that combines a set of knowledge

related to people in organizations, explaining to managers how to manage this resource in organizations, that the performance (effects) of individuals (individual effects) as well as the performance (the results) of organizations would be high" (Petković, 2011: 219).

For career development an important legal aspect is that it must guarantee respect for the law, a fair salary system and an improvement that must be linked to the individual effect.

The definitions of the notion and content of career advancement are contained in the Law on Police and regulations based on it.

"Career development is a process of continuous professional capability development and advancement of police officers, aimed at improving individual and organizational work performance, and for the purpose of efficient and effective contribution to the achievement of the goals of the Ministry" (Article 2 of the Regulation on Career Development of Police Officers). Career development of the employee must be based on developing the ability to perform a certain job (competence) and measuring what is specifically done and the results of the work (effect).

The Law on Police from 2016 introduced career development, and already in 2018, by the Law on Amendments to the Law on Police ("Official Gazette of the RS" no. 24/2018) the provisions on the career development of police officers were more adequately and more precisely formulated than it was the case before, which should lead to their full and proper application. The biggest change of the previous legal solution is reflected in making the difference between executive and managerial positions, adding new provisions which regulate training and professional exam for different levels of management, as well as the emphasis that career advancement as a part of career development implies horizontal and vertical advancement.

Amended Article 165 reads: "In accordance with the system of career development of police officers: 1) rank/title shall be determined based on the tasks of the job position to which the employee is being assigned or transferred; 2) for acquiring the next rank/title within the executioner job position and within the same level of management it is necessary to meet the requirements of the appropriate level of education, the required number of years of service spent in the previous rank/title, successful completion of professional training for the rank/title, as well as appropriate annual grades; 3) for acquiring the next rank/title in the next higher level management it is necessary to meet the requirements of the appropriate level of education, the required number of years of service spent in the previous rank/title, training for the appropriate level of management, successful completion of professional competence examination for the rank/title, as well as appropriate annual grades; 4) for transition to operational or next higher level of management, in the acquired rank/title, the required training for the appropriate level of management and successful completion of professional competence examination for the next higher level of management; 5) the rank of general shall be acquired in accordance with the rules of career development of police officers for specific managerial job positions of strategic and high levels.

As criteria for career advancement there are requirements of the appropriate level of education, the required number of years of service, successful completion of professional training and of professional competence examination, as well as appropriate annual grades of police officers. The legally prescribed conditions for advancement establish a system of career advancement that will disable arbitrariness of managers to set their favourites and poltroons to the workplace, even if they have poor performance, insufficient working experience and even inadequate professional qualifications. Clearly defined criteria and transparent procedures for career development and advance should ensure equal conditions for all employees at the same time reducing the possibility of discretionary decision-making by the manager to a minimum.

Particularly positive in the career development of police officers is the conditionality for further progress with the appropriate level of education or professional advancement, and in this way it emphasizes the necessity of continuous education throughout the entire professional career. By the Law on Amendments to the Law on Police already established ranks and titles do not change, but the degree of education required for their acquiring is specified. In this way, they harmonize with the provisions of the Law on Higher Education ("Official Gazette of the RS", no. 88/2017 and 27/2018).

The second condition refers to the number of years of service spent in the previous rank/title, but the most important novelty is that the time spent in a rank/title with a lower professional qualification is not counted when calculating the time required for advancement, but only in the years of service required to advance to the next rank/title account exclusively time spent at the workplace in the previous rank/title. It is not enough to have only certain years of service in order to advance automatically to the next higher rank or title, as has been practice in the police, but also to fulfil other legally prescribed conditions and procedures.

The Law on Police of 2016 specifies that the years of service required to advance to the next rank/title include only the effective working time spent in the workplace in the previous rank/title. The Regulation on Career Development of Police Officers in determining the rank/title after the election at the internal competition and transferred to the workplace of the police officer, as the criteria for determining the rank/title, prescribes the tasks of the specific workplace and the effective working time spent in the Ministry. Amendments to this law omitted the word "effectively". Such a solution brings police officers into an unequal position, and may also cause doubts about the calculation of years of service, given that the years of service are counted in an increased duration for the police officers, and having in mind that it is not the same for all workplaces, with the word "effectively" possible errors in its calculation are avoided, and police officers are equalized and placed in the same, equal, career development position. In any case, insisting on a certain period of time for acquiring a higher rank/title contributes to acquiring of knowledge, skills, experience and the formation of a mature and responsible police officer. In addition, this condition is according with the prevailing practice in the police that police managers are elected from the police midfield. The future police managers should have experience in carrying out police tasks, because a successful management of the police requires a professional experience. Guiding of police forces is not possible only on the basis of school knowledge and theory, they need direct experience and knowledge of the organizational and functional activities of the police and the nature and character of the police work, as key conditions for effective and responsible police guiding.

Career development establishes the link between professional advancement and career progression in the Ministry. A police officer must successfully complete professional training for the rank/title if he wishes to progress within executive jobs or at the same level of management. In the case of acquiring the next rank/title in the next higher level of management it is necessary to attend training for an appropriate level of management and successful complete professional competence examination for the rank/title. The Law on Amendments to the Law on Police, Article 165, which regulates career development, is supplemented by paragraph 4, which reads as follows: "Transition to operational or the next higher management level, in the acquired rank/title, requires training for the appropriate management level and successful completion of professional competence examination for the next higher management level."

By these amendments, an obligation is established of "training for the appropriate management level" because the legislator obviously recognized the necessity of having certain knowledge, skills and competences for successfully performing the management function.

Emphasizing the conditionality for further advance with appropriate professional advancement in that way it points to the necessity of continuous education of all who want to

progress throughout the entire professional career, especially managers, because of the role and responsibility they have. Therefore, for acquiring the next rank/title of the next higher management level, as well as transiting to operational or the next higher management level, there is an obligation to successfully complete professional competence examination for the rank/title or the next higher management level. In this way, the level of knowledge and abilities of the manager for carrying out higher level tasks in relation to those currently performed is checked. Regulation about criteria for scheduling management work places of police officers ("Official Gazette of the RS" no. 8/2017) for each management level (strategic, high, medium and operational), the criteria for assignment are defined: complexity of business, business communication, education, rank/title, level of responsibility and decision-making power, and degree of autonomy in work.

One of the biggest weaknesses of our administration must be eliminated, including the police, and that is to advance "not by what the clerk knows, but whom he knows" (Milosavljević, 2012: 143). That kind of career system should and must change.

In order for a police officer to progress, he must have, as the law has formulated "appropriate annual grades". According to Article 167 of the Law on Police, this means that "for promotion it is necessary that three-year average grade may not be lower than 4 (excelling)". This legal solution should prevent the progression of police officers with lower grades. Evaluation as a condition for career development and career advancement is important because it is the basis for monitoring and improving the results of work. The Regulation on the Evaluation of Police Officers and Other Employees in the Ministry of Interior ("Official Gazette of the RS" no. 17/2017) makes a difference in the evaluation of work results for employees at executive job positions and employees in managerial job positions. At the executives, certain virtues are evaluated: professionalism, innovativeness, use of new methods of work and technologies and contribution to the achievement of the planned results of the organizational unit, and for managers: leadership and development of employees, innovation, the use of new methods of work and technologies, and the degree of realization of the planned results of the organizational unit.

Unlike the previous one, this model involves a two-cycle evaluation of six months, with one final annual grade, indicating that evaluators will continuously monitor the results of work and employee progress.

What may be a problem in evaluating as a condition on which career advancement depends, is a way of evaluating that gives excessive discretionary rights to managers. Article 6 of the mentioned Regulation prescribed that the evaluation of the work of an employee is carried out by a direct manager, so-called evaluator, and that the control of grade of the employee is carried out by the direct manager of the evaluator. As an add-on, "the results of the evaluation process are confidential" (Article 3, paragraph 2 of the Regulation), i.e. no one other than the employee and the manager who evaluates him, cannot see the grade, which can additionally create doubts about the objectivity of the evaluator. A particularly bad solution is contained in Article 16, which is that "if the evaluator is the manager of an internal organizational unit, the evaluator is at the same time the controller". Such provisions open the space to the managers for "punishing" the opponents by making them obstacles and problems in career advancement, and on the other hand, it gives the opportunity to favour certain favourites.

Because of the recognition of the significance of evaluation for career advancement, the Human Resources Sector devoted special attention to the education of evaluators, so a plan for conducting training of all managers in the Ministry was adopted.

By introducing career development and career advancement, there is no longer a possibility of premature and extraordinary promotion, but only promotion in clear and publicly defined procedures, equal to all employees in the Ministry, without discrimination and unequal

treatment on any basis. In this way, the competition in the selection of staff is intensified, with the ultimate goal of reaching the highest quality employees or manager in every work place. In addition to strict rules and the elimination of the possibility of automatism in advancement, compliance with the staffing plan is also needed.

The Law on Amendments to the Law on Police created the conditions for the career development of police officers, as a system based on the principle of managing the competence and performance of an employee, which would ensure that only the best, in an expert, moral and professional way, can advance in career and occupy the most responsible jobs. It is believed that the use of staff that has been "nurtured" by the organization itself provides better working morale, which is achieved by the fact that people know that the paths of advancement are open and that they will be rewarded for successful work by promotion and/or transferred (Wren, Voich, 2001: 281).

CONCLUSION

The Ministry of Interior has taken steps to establish the career development of police officers. The undertaken activities and the creation of a normative framework for its implementation, set the basis for professionalization of the police and establishment of its integrity.

Recognizing and developing the work potential of police officers positively influences their motivation and higher productivity, affirms the peculiarities of the police organization, its jurisdiction and goals. The establishment of career development keeps the best and dedicated professional and expert personnel, which further contributes to the stability and quality of the police organization.

Career development of police officers is understood and implemented as a permanent process with the aim of continuously raising the quality of policing.

All this points to the undeniable fact that the Ministry recognizes the importance and role of human resources, as well as the creation of strategic, normative and organizational preconditions for establishing the concept of human resources management based on career development. But this is still not enough to create a modern human resources management system. An integrated approach to the development of human resources is needed, which will enable the development of strategies and policies of human resources as the main carrier of the Ministry's reform activities.

Some of the necessary activities are in progress (catalogue, descriptions, division of status, salary regulation), while others (talent management, performance management, etc.) are, for now, barely visible. But, if moving in this direction is continued, the Ministry of Interior with Human Resources Sector will undoubtedly achieve high standards and seriously step into the modern concept of human resources management.

Establishing a career development of police officers gives a significant contribution to this.

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DEPROFESSIONALISATION OF POLICE WORK – THE INCREASED DEPLOYMENT OF "AUXILIARY POLICEMEN" IN GERMANY

Philipp Stein
Georg-August-Universität Göttingen, Germany

Abstract: The changed security situation and processes of political and social change have led to an actor-related reorganization of the area of internal security in Germany. Today, for example, so-called "auxiliary policemen" are increasingly taking on traditional tasks in the field of law enforcement. The government's goal of increasing the use of "semi-professional actors" in the area of internal security is, on the one hand, to relieve the police officers and, on the other hand, to increase the presence of uniformed security personnel that are intended to improve the subjective sense of security among citizens and thereby suggest political capacity to act. In literature, this development is referred to as "deprofessionalisation of police work" or "auxiliary police work".

The aim of the article is to compare the different models and characteristics of the auxiliary policemen within the framework of a legal evaluation to be able to make a statement about their practicability and optimisation potentials. The article focuses on the involvement of private citizens as so-called "voluntary police assitants" as well as the deployment of "auxiliary police officers" in a "guard police" or "munipical order service". Data on the number of members in the individual institutions were collected in close cooperation with the interior ministries of the federal states in Germany. From a constitutional point of view, this article examines, in particular, whether the different models meet the requirements of the functional reservation of article 33 par. 4 of the German Constitution.

Keywords: Deprofessionalisation of police work, auxiliary policemen, city police, guard police, voluntary police assistants

INTRODUCTION

As result of fewer and fewer personnel for more and more missions - the police in Germany are in distress. The growing threat posed by international terrorism, extensive migration movements to Europe and Germany in particular, and demographic changes are complex threats that are increasingly weighing on the security climate in Germany. Even if these are primarily problems facing society as a whole, the public perception of the security situation is largely attributed to the police. However, the country is suffering from acute personnel shortages as a result of the progress made in reducing the workforce in recent years. By the end of 2016, 251,430 police officers were employed in Germany; 220,813 of them in the state police forces (statistics for 2016) and 30,617 in the federal police force (Bundespolizeipräsidium, 2016). In recent years there have been fewer and fewer of them. In 2017, police officers in Germany worked a total of 22 million of overtime hours (*Polizisten haben 22 Millionen*

Überstunden gemacht, 2018). According to the police union (GdP), this corresponds to an annual workload of almost 10,000 police officers (*Polizisten haben 22 Millionen Überstunden gemacht*, 2018). Many citizens therefore complain of a "lack of police presence": on the streets, on patrol, in everyday life there is a lack of police officers. This reduction in police personnel has been offset by an increase in tasks and police operations. More and more demonstrations and major sporting events must be secured or refugee homes guarded. This situation threatens to worsen even further as a result of the wave of retirements by the police over the next few years. According to calculations by the Police Union (GdP), a total of 44,000 police officers will retire by 2021 (*Deutsche Polizei*, 2017). The federal chairman of the GdP, Oliver Malchow, sees the stability of the German constitutional state at risk and warns of a further erosion of internal security in Germany (*Deutsche Polizei*, 2017).

It is therefore questionable how this security policy dilemma currently faced by the German police can be resolved, i.e. how it will be possible to send more police officers out onto the streets again and thus increase the visibility of the police in public.

The first possible solution is to recruit more police officers at federal and state level. Such a rethinking has already begun in many federal states in the last two years. According to the coalition agreements of the state governments newly elected in the last two years, approximately 1,500 new police officers are to be recruited in Baden-Württemberg, 1,500 in Lower Saxony, 1,050 in Saxony-Anhalt, 500 in Schleswig-Holstein and 2,300 in North Rhine-Westphalia by the year 2020/2021. This turnaround in recruitment policy at the state level can also be seen at the federal level in the coalition agreement between the CDU, CSU and SPD of March 14, 2018. According to this, the governing parties agreed to create a total of 15,000 new positions for the security authorities at federal and state level by the end of the 19th legislative period in the year 2021. According to the GdP, the 15,000 jobs agreed by the governing parties are not sufficient (Deutsche Polizei, 2017). In order to have noticeably more police officers on the streets by the end of the legislative period in the year 2021, the number of planned new appointments would have to rise to over 20,000 police officers (Deutsche Polizei, 2017). Another problem is that these police officers will only be available after three to four years at the earliest - as long as the training usually takes. Against the background of the tightening security situation and the burden on the law enforcement agencies, however, the state police need to be relieved quickly and not in a few years' time. Therefore, the first approach seems only partially suitable to solve the security problem in Germany.

Therefore, a second possible solution - already practiced in many German states - appears more promising, which pursues a transfer of tasks in the primarily low-threshold danger area to the so-called "auxiliary policemen". They can perform tasks for which a fully trained police officer does not necessarily have to be deployed, e.g. facility protection, traffic monitoring, accompanying dangerous or heavy goods transports or deportation of foreigners who are obliged to leave the country. By delegating tasks, the sate police officers can be released for original police tasks and the police presence in the area can be strengthened, thus noticeably improving the feeling of security among the citizens in Germany.

Taking the second solution as a starting point, the role of the police in the German security architecture is described in this article (II). The different forms of participation of the so-called "auxiliary policemen" in Germany are then examined in more detail (III) and with regard to their constitutional limits (IV). Finally, in the context of a legal statement, possible improvement potentials are pointed out and concrete suggestions for change are made (IV).

POLICE AS THE MAIN AUTHORITY FOR ENSURING INTERNAL SECURITY

Security and peace within the country is guaranteed by the rule of law, which is based on an institutionally differentiated, competence-sharing security architecture (Möstl & Trurnit, 2017). In addition to the local regulatory authorities, the police are of particular importance since they are active in almost all areas where measures to maintain internal security need to be effective (Wielsch, 1998). The institutional relationship between these two authorities varies among the individual federal states in Germany and depends on how consistently the programme of the so-called "de-policeisation" of the local regulatory authorities (separation/unification principle) has been implemented (Möstl & Mühl, 2017). The exposed position of the police is based, on the one hand, on their universal competence, which is subsidiary to the entire security architecture shared by the authorities, and, on the other hand, on the particularly extensive power structure. No other part of the state has such far-reaching access to the areas of citizens protected by fundamental rights. In contrast to the other state security functions, the police are not only always and everywhere deployable in principle, but are also actually equipped with the most effective legal means to provide sufficient protection in every situation (Bäuerle, 2008, p. 15; Möstl & Schwabenbauer, 2017). The police have the most extensive powers, not only in its breadth (general clause), but also in its depth (ability to enforce decisions immediately and with immediate force, if necessary, right up to the use of firearms). The police thus appear to be the purest embodiment of the state guarantee of public security and order and the state monopoly on the use of force. The original task of the police is to avert threats to public safety and order, the so-called "preventive police task" (Pieroth, Schlink & Kniesel, 2016). In addition, the police have in particular the task of prosecuting criminal offences and administrative offences, the so-called "repressive police task", assigned to them "by other legal provisions", most importantly by § 163 par. 1 sentence 1 German Code of Criminal Procedure (StPO) and § 53 par. 1 sentence 1 German Administrative Offences (OwiG).

FULFILMENT OF SOVEREIGN TASKS OF DANGER PREVENTION BY 'AUXILIARY POLICEMEN'

The guarantee of internal security in Germany is increasingly characterised by a plurality of actors. Due to its limited financial and human resources, the state is increasingly using the so-called "auxiliary policemen" in addition to private security actors to fulfill tasks of danger prevention in their jurisdiction. It is therefore necessary to clarify what is exactly meant by this term.

There is no uniform definition of the term "auxiliary policeman" in the German law. In particular, the police laws of the individual federal states do not contain a legal definition. Only the Hamburg Police Act (SOG HH) uses the term "auxiliary policeman". Thus, according to § 29 par. 1a, b SOG HH, "for the supervision and regulation of road traffic and to support the enforcement police and fire brigade in emergencies, persons can be appointed as auxiliary policemen". However, the law does not contain a definition of the term "auxiliary policeman". Other federal states (e.g. Hesse, Lower Saxony or Saxony-Anhalt) alternatively use the term "auxiliary police officer" for the possibility of appointing auxiliary policemen. Such inconsistent use of the terms can easily lead to misunderstandings. An exact differentiation must therefore be made. The state law on police force is therefore unsuitable for the definition of the term "auxiliary policeman".

In literature the term is used in various contexts. On the one hand, the term is used as a summary for the various forms of so-called "voluntary police assistants", which are organised in "voluntary police services" in Hesse and Baden-Württemberg, in "security guards" in Bavaria and Saxony and in "security partnerships" in Brandenburg (Fenger, Tohidipur & Tuchscherer, 2013, p. 451; Fickenscher, 2006, p. 82; Pitschas, 2000, p. 59; Tuchscherer, 2017, p. 50). On the other hand, the term is also used as an abbreviation or synonym for the term "auxiliary police officer" (Ehm, 2005, p. 225; Fenger, Tohidipur & Tuchscherer, 2013, p. 451; Fickenscher, 2006, p. 82; Lange, 2006, p. 44; Tuchscherer, 2017, p. 50; Wehr, 2015). In this article, the term is understood as a generic term for all persons who are not full-time police officers but who nevertheless perform security police tasks in state-initiated forms of organisation at federal state or municipal level. However, the models of volunteer police officers (1) and auxiliary police officers (2) differ in particular with regard to the scope of the tasks and powers conferred by the State and must therefore be strictly separated.

VOLUNTARY POLICE ASSISTANTS

In this work, the term "voluntary police assistant" refers to all persons who perform sovereign tasks of danger prevention on a voluntary basis in a state-initiated model and are appointed by the responsible police headquarters in cooperation with the municipalities. These include the members of the "security guards" in Saxony and Bavaria, the members of the "voluntary police service" in Hesse and Baden-Württemberg and the "security partners" in Brandenburg. These services for the participation of voluntary police assistants are based on the model of the state guarantee for the prevention of danger (Fickenscher, 2006). The actions of the voluntary police assistants are assigned to the federal state as supporters of the federal state police, but they are deployed at municipal level in coordination with and financed by the municipality (Möstl & Mühl, 2017). This requires a corresponding decision by the municipal bodies and a contractual agreement between the federal state and the municipality. In the interest of the common good, the private citizen should participate in the federal state's security guarantee and assume responsibility in the course of this in clearly defined areas of liability. This involvement of private individuals should, on the one hand, emphasise the social and civic responsibility for ensuring security and, on the other hand, take into account the requirements of a publicly present, effective and above all citizen-oriented police force (Fickenscher, 2006; Kreuzer & Schneider, 2002).

In practice, the voluntary police assistants support the police officers, above all, in the preventive area, in which they function primarily as additional contacts for the citizens on the street within the scope of patrols. The scope of the delegated powers varies between the individual models and ranges from the waiver of the transfer of sovereign powers in Brandenburg to equality with the powers of police officers in Baden-Württemberg. A data collection carried out by the author shows that in the five federal states, a total of 2,508 voluntary police assistants are active, 400 of them in Hesse, 455 in Saxony, 875 in Bavaria, 708 in Baden-Württemberg and 70 in Brandenburg.

AUXILIARY POLICE OFFICERS

Due to their legislative competence in security law, the federal states have the possibility to regulate the deployment of so-called "auxiliary police officers" within the framework of the design of their security and regulatory laws. Almost half of the countries have made use of this

and legally standardised the requirements for the deployment of the auxiliary police officers. In a total of seven federal states, auxiliary police officers may be appointed to perform certain security tasks or to assist in certain police duties. The figure of an auxiliary police officer is by no means a homogenous appearance, but sometimes shows considerable differences in the design and application of police regulations (Nünke, 2005).

Therefore, what is to be understood by this term is questionable. In the literature, auxiliary police officers are defined as persons who are authorized by appointment to perform certain police tasks and measures, their actions being attributed to the respective appointing authority (Möllers, 2010). They shall have the powers of police officers within the framework of the tasks assigned to them (Möllers, 2010). The basic idea behind the deployment of auxiliary police officers is to reduce the workload of full-time police officers (Rupprecht, 1995). They always take action when the deployment of full-time police officers is not reasonable or not possible for financial or personnel reasons (Steiner, 1975; Urgenbieler 1980). The appointment as an auxiliary police officer usually takes place via a written administrative act requiring cooperation in the form of an order letter as well as a written obligation of the orderer (Schenke, Gaulich & Ruthig, 2014). The appointment is based on a contractual relationship in the form of an employment contract between the appointing authority and the auxiliary police officer. Auxiliary police officers are mainly employees of the state or local authorities (districts, municipalities, independent towns) and establish an employment relationship under private law with the respective employment authority (Lisken, Denninger & Rachor, 2012). This basic contractual relationship is legally separate from the order.

Auxiliary police officers can therefore be distinguished from voluntary police assistants primarily on the basis of two characteristics. On the one hand, they perform professional security police duties and do not merely perform an honorary function in the state-social community. On the other hand, there must usually be a "material need" for the appointment of an auxiliary police officer (Möllers, 2010). This can only be assumed in exceptional cases if the available police officers at individual locations and for certain official acts are not sufficient or their use would be economically unjustifiable (Drewes, Malmberg & Walter, 2015). For the employment of volunteer police assistants, on the other hand, there is no objective need. It is not intended to compensate for staff shortages at the police, as volunteers are not intended to replace the work of the police, but are merely an additional offer of police helpers on the street.

In police practice, two models in which auxiliary police officers are given considerable sovereign tasks and powers over a certain period of time are of particular importance. On the one hand, this is the model of the so-called "guard police" (a) at the state level and, on the other hand, the model of so-called "municipal order service" (b) at the municipal level.

GUARD POLICE

In June 2016, the then Federal Minister of the Interior, Thomas De Maizière, proposed that, in order to solve the security policy dilemma of the police in Germany described above, the fight against burglars in particular should be fought with "guard police officers" trained at short notice and thus caused a sensation throughout Germany. In an interview with the Rheinische Post, he described the security police in Saxony as "very useful" and "forward-looking model" (Bröcker & Quadbeck, 2016). The advantage of the greatly shortened training is to be used to send uniformed personnel onto the streets as quickly as possible and thus to suggest to the population that they are capable of acting (Bröcker & Quadbeck, 2016). But it is not only in Saxony that police guard officers have (since 2016) performed police

duties. Such "auxiliary policemen" are also deployed in Berlin (since 1993), in Hesse (since 2000), in Saxony-Anhalt (since 2016) and in Saarland (since 2016).

According to the legal definition in § 13 sentence 1 HSOG-DVO, police guards are "employees of the country who work at police headquarters and perform enforcement tasks for which the deployment of police officers is not absolutely necessary". In the "Dictionary of Internal Security", the guard police are defined as an organizational unit entrusted with special tasks and consisting of employees, which is linked to the police headquarters of the individual countries as part of the general organizational structure of the police authorities (Lange, 2006, p. 360). In practice, the focus of the police's activities lies in the areas of object protection, detention and traffic monitoring. With the exception of the states of Hesse and Saarland, where the members of the security police have the same powers as the police officers, only limited police powers are assigned to the guard police officers. A data collection carried out by the author shows that a total of 3,241 police guards are employed in these five federal states (1,946 in Berlin, 630 in Hesse, 550 in Saxony, 85 in Saxony-Anhalt and 30 in Saarland). In addition, there are other models in Bremen, Hamburg and Lower Saxony in which a total of 569 auxiliary police officers (379 in Hamburg, 90 in Bremen and 100 in Lower Saxony) perform security police duties as employees of the state.

MUNIPICAL ORDER SERVICE

In addition to the federal state and state police authorities, the local regulatory authorities in Germany have gained enormously in importance in recent years. The employees of the local regulatory authorities are assigned to an organizational unit, which in the vast majority of municipalities is called the "Public Order Office" (Lisken, Denninger & Rachor, 2012). Their area of responsibility includes not only their own affairs in the area of local self-government in accordance with Article 28 par. 2 of the German Constitution, but also the state tasks assigned to them by law – the so-called "mandate and instruction matters" (Möllers, 2010). The latter also include all other federal or state law matters as well as the prosecution and punishment of administrative offences (cf. § 35 OwiG). The prosecution of criminal offences, on the other hand, is the sole responsibility of the state police (cf. § 163 par. 1 StPO). In order to prevent problems of jurisdiction in the prosecution of administrative offences and criminal offences in practice, members of the local regulatory authorities are on the road together with state police officers as "mixed patrols" in some large municipalities (Bülow, 2004; Lisken, Denninger & Rachor, 2012).

By contrast, the task of danger prevention is assigned to both state police and local regulatory authorities. In order for the general and special police and regulatory authorities to carry out the task of danger prevention comprehensively and without overlapping at the same time, all federal states have included a so-called "subsidiarity clause" in the federal state police laws. This standardizes the principle that the actions of the police are subsidiary to the risk-repellent actions of the local regulatory authorities (Kugelmann, 2012; Söllner, 2012). The tasks of preventing danger are therefore basically assigned to the local regulatory authorities (right of first access) and the police only have the task of danger prevention if at least temporary action cannot be postponed and the action of the local regulatory authority does not appear possible or not in time (urgent competence of the police) (Pieroth, Schlink & Kniesel, 2016). The transfer of general police powers to the local regulatory authorities takes place either through a legally separate reference to the standards of the relevant police law or through a direct authorisation in the police law itself. In theory, until the turn of the millennium, a rough distinction could be made between police and regulatory authorities not so much on the basis of

their tasks as on the basis of the means available to them. While the police authorities typically fought obvious dangers quickly and unbureaucratically "on the spot" (field service) and at the same time carried out the tasks according to § 163 StPO, the local regulatory authorities typically worked bureaucratically-administratively at the desk (office service) and fought dangers that were not immediately realized (Gusy, 2017).

In practice, however, this abstract differentiation between police authorities as field service and regulatory authorities as office service is only able to reflect today's reality to a limited extent. In recent years, the regulatory agencies of many municipalities in Germany have increasingly switched to setting up uniformed enforcement/field services (Möstl & Trurnit, 2017). What is new here is not, for example, that the municipalities perform certain regulatory tasks such as traffic control or food inspection with their own enforcement personnel, but rather that the focus of the tasks is shifted. For example, their uniformed enforcement services are increasingly used to prevent general danger and to maintain safety, order and cleanliness in public areas. This is intended to relieve the state police force, which in many places is no longer in a position to devote itself to the more simple police tasks in the municipal area to the required extent, as well as to improve the subjective feeling of security and the objective security situation in the municipal area (Gassner, 2013; Möstl & Trurnit, 2017). Since the municipalities pursue very different practices with regard to the establishment and design of municipal order services, the stripes of the order offices differ not only in their naming, but also with regard to the conception and form of organisation.

The term "municipal order service" is thus used as a collective term for all the different forms of uniformed enforcement services of the municipal order offices, in which the employees have a position more or less similar to that of an police officer on the basis of the tasks and powers assigned to them (Groß, 2012; Söllner, 2011). Depending on the federal state, the uniformed municipal enforcement services are referred to as "municipal law enforcement officers" (Baden-Württemberg and Saxony), "general security service" (Berlin), "city police" (Frankfurt am Main in Hesse), "municipal police" (Hesse) or "municipal security service" (North Rhine-Westphalia).

In practice, the city police of Frankfurt am Main, whose auxiliary police officers are equipped with uniforms and firearms and are increasingly taking on classic police duties, is of particular importance. The tasks and powers of city policemen in Frankfurt am Main can hardly be distinguished from those of the state police officers. The tasks and powers of the city police in Frankfurt am Main are already so extensive that there is talk of establishing a security institution replacing the police: "city police instead of police" (Tuchscherer, 2017).

ARTICLE 33 PAR. 4 OF THE GERMAN CONSTITUTION AS A LIMIT TO THE DELEGATION OF SOVEREIGN SECURITY TASKS

The decisive constitutional limit for a transfer of sovereign tasks of danger prevention to voluntary police assistants or auxiliary police officers is the functional reservation of article 33 par. 4 of the German Constitution. According to article 33 par. 4 of the German Constitution, the exercise of sovereign powers is to be delegated as a permanent task, only to members of the public service who are in a public-law trust relationship. This standard is intended to ensure the continuity of the sovereign functions of the state and thus ensure the public interest in the fulfillment of state tasks under the rule of law, because the civil servants are regarded as guarantors of this type of administration (Braun, 2008; Maunz & Dürig, 2017). Furthermore,

it serves as a guarantee of a "minimum area of employment for the civil service" (Epping & Hillgruber, 2018). Such continuity is particularly important in the area of ensuring internal security by police officers. Because the police, like no other state institution, stand for the classical administration of sovereignty and intervention. Police action almost always leads to intensive interference in the fundamental rights of citizens and often has serious consequences for the addressee of a police measure, which can also be enforced, if necessary, with police force and even the use of firearms.

The public service and fiduciary relationship required in principle in article 33 par. 4 of the German Constitution is characterised by a particularly close relationship between the employee and the employer, which can only be justified by the transfer to the civil service and not by the employment relationship determined in accordance with civil law principles (Möstl & Schwabenbauer, 2017). Neither the voluntary police assistants nor the auxiliary police officers, employed by the state or the municipality, thus fulfill the requirements of article 33 par. 4 of the German Constitution. However, the wording "as a rule" in article 33 par. 4 of the German Constitution makes it clear that individual exceptions to the principle are permissible if there is a compelling objective reason for this (Epping & Hillgruber, 2018; Tuchscherer, 2017). The mostly cited motives of financial relief for the state (Bracher, 1987; Waechter, 1997; Fickenscher, 2006) or the greater qualification of individual auxiliary policemen in special areas (Kutscha, 2007; Möstl & Mühl 2017; Tuchscherer 2017) are not sufficient to derogate the principle of civil service. Depending on the scope of the delegated sovereign tasks and powers, there are therefore considerable doubts as to the constitutionality of individual forms of voluntary police assistants and auxiliary police officers working in a guard police or city police (Hornmann, 2001; Möstl & Schwabenbauer, 2017; Tuchscherer, 2017).

SUMMARY AND LEGAL STATEMENT

In the context of a current controversial debate on improving internal security in Germany, this article was intended to provide an initial overview of the possibility of deploying the so-called "auxiliary policemen". Due to the acute shortage of police personnel, the use of auxiliary policemen in various forms of participation (e.g. voluntary police assistants, security guards, guard police or city police) seems to be the order of the day in order to create a noticeable relief for the police in the short term.

The advantages of using auxiliary policemen are obvious: in addition to the enormous cost-saving potential, the auxiliary policemen can be deployed more flexibly and the arrangement can also be terminated more easily due to a lack of civil service protection. However, the biggest advantage lies in the extremely shortened training period - compared to that of the police officer - which lasts on average only 3 or 4 months. This means that the auxiliary policemen are ready for action within a very short time.

In contrast to the advantages, the use of auxiliary policemen also has major disadvantages: the recruitment requirements and training requirements are considerably lower than those of the police officers. These lower requirements are extremely critical against the background of the sometimes very extensive police tasks and powers. Furthermore, the lack of visual distinction of the different services creates a certain amount of legal uncertainty for citizens. In everyday life, citizens in Germany suddenly find themselves confronted not only with "normal" police officers but also with a guard police, a city police or a voluntary police service. The members of the different services can no longer be distinguished visually, since all employees - with the exception of emblems - wear similar uniforms. It is becoming increasingly difficult for the citizen to know which "police" officer he is dealing with and, at the same time, what

powers the respective officer is entitled to. The use of the key word "police" in the various services also contributes to the confusion of citizens. The semantic distinctiveness of the "police" as the symbol and expression of the state's physical monopoly on the use of force is threatened by terms such as guard "police", city "police" or voluntary "police" service.

It is therefore imperative to create a clearer visual and semantic separation between the auxiliary policemen and the "normal" police officers. This can be implemented, for example, through a clear colour differentiation of the uniforms of the auxiliary policemen as well as a uniform formation of terms, which expresses the auxiliary function, at least within the individual models (voluntary police assistants, guard police, municipal order service). Further possibilities for improving transparency with regard to the actions of the auxiliary policemen are, on the one hand, a nationwide obligation to provide identification for the auxiliary policemen on the model of § 94 par. 3 Rhineland-Palatinate Police Act (POG R-P) and, on the other hand, a nationwide public duty of disclosure for the authority appointing an auxiliary policeman on the model of § 80 par. 3 Saxon Police Act (SächsPolG). In addition, the sometimes considerable differences - particularly with regard to training, equipment and tasks - between the respective services in the federal states must be harmonised to some extent.

Finally, it should be noted that the second solution described above, the transfer of sovereign tasks of danger prevention to auxiliary policemen - despite the disadvantages pointed out - is the right way to prevent the danger of an erosion of the rule of law in Germany arising from the acute personnel shortage of the police. The deprofessionalisation of police work in Germany, accompanied by the deployment of auxiliary policemen, must not be seen exclusively as a negative development. Taking into account the legal framework described and the proposals for optimisation, the transfer of sovereign tasks in peripheral areas of danger prevention can represent a real alternative in police work in order to be able to satisfy the constantly growing need for security on the part of citizens in Germany nowadays.

The various forms of so-called "auxiliary policemen" in Germany

Guard police	Berlin	Saxony	Saxony-Anhalt	Hesse	Saarland
Year of foundation	1993	2016	2016	2000	2016
Legal Base (appointment of auxiliary policemen)	§ 5 Abs. 2 Satz 1 ASOG Bln (VO-Ermächtigung)			§§ 99 Abs. 4 Nr.1, 114 S. 1 HSOG (VO-Ermächtigung)	§ 84 Abs. 1 SPolG
Legal Base (power of intervention)	§ 5 Abs. 2 Satz 2 ASOG Bln i.V.m. §§ 2, 3 PDieVO	SächsWachdienstG	WachPolG	§§ 99 Abs. 4 Nr. 1, 114 S. 1 HSOG , 13 HSOG-DVO i.V.m. VVWaPol	§ 84 Abs. 2 Satz 1 SPolG i.V.m. §§ 8 ff. SPolG

Other models of an "employee police force"	Bremen	Hamburg	Lower Saxony
Designation	Angestellte im Polizeidienst (AiP)	Angestellte im Polizeidienst (AiP)	Hilfspolizisten
Legal Base (appointment of auxiliary policemen)	§ 76 Abs. 1 Satz 1 BremPolG	§ 29 Abs. 1 SOG HH	§ 95 Satz 1 NdsSOG
Legal Base (power of intervention)	§ 76 Abs. 1 Satz 2 BremPolG i.V.m. §§ 10-26 BremPolG	§ 29 Abs. 2 Satz 1SOG HH i.V.m. §§ 11 ff. SOG HH	§ 95 Satz 2 NdsSOG i.V.m. §§ 11 ff. NdsSOG

federal state level

Voluntary police assistants	Bavaria	Saxony	Baden-Württemberg	Hesse	Brandenburg
Year of foundation	1994	1998	1963	2000	1994
Designation	Sicherheitswacht	Sicherheitswacht	Freiwilliger Polizeidienst	Freiwilliger Polizeidienst	Sicherheitspartner
Legal Base (power of intervention)	Art. 3-7 SWG	§ 3-7 SächsSWG	§ 1 Abs. 4, 6 Abs. 1 FPolDG i.V.m. §§ 26 ff. PolG BW	§ 3 Abs. 1 HFPG	*Erlass* "Eckpunktepapier KKP" (abstrakter ministerieller Handlungsrahmen) + *Erlass* "Sicherheitspartner des Landes Brandenburg im Rahmen der KKP"

federal state level/ munipical level

Munipical order service	Baden-Württemberg	Saxony	Rhineland Palatinate	Berlin	Hesse
Designation	Gemeindliche Vollzugsbedienstete	Gemeindliche Vollzugsbedienstete	Kommunale Vollzugsbeamte	Allgemeiner Ordnungsdienst	Stadtpolizei/ Kommunalpolizei
Legal Base (appointment of auxiliary policemen)	§ 80 Abs. 1 PolG BW	§ 80 Abs. 1 SächsPolG	§ 94 Abs. 1 POG R-P		§ 99 Abs. 1 Satz 1 Alt. 1 HSOG
Legal Base (power of intervention)	§ 80 Abs. 2 PolG BW i.V.m. §§ 26, 27, 27a, 28-33 PolG BW	§ 80 Abs. 2 SächsPolG i.V.m. §§ 18, 19, 20-27 SächsPolG	§ 94 Abs. 2 Satz 2 POG R-P i.V.m. §§ 9, 9a, 10, 13, 22, 26, 27, 30, 33, 37 POG R-P	§ 2 Abs. 6 Satz 1 ASOG Bln i.V.m. § 3 Abs. 2 ODienstV BE	§ 99 Abs. 2 Satz 1 HSOG i.V.m. §§ 11 ff. HSOG

munipical level

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THE PROFESSIONALISATIONOF THE POLICE COMMUNICATIONWITH MEDIA

Ivan Djorovic, PhD
Ministry of Internal Affairs of the Republic of Serbia - Police Directorate

Abstract: Media presentation of police activities is essential for the formation of public attitudes towards the police. This is one of the most complex and the most important activities of the police in dealing with the public. In addition to the repressive role of the police, which is in any society regulated by applicable legal regulations, the police nowadays use non-repressive contacts with citizens, relationships with families, schools, health, teaching and other organizations, as well as the activities which are more like a social, than a police work, in order to achieve popularity among the public. The media are a very important factor in shaping public attitudes towards police work. Cooperation with the media is a key factor in the democratization of the police and the circumstance which is taken into account by all police agencies wanting to get a public support for their work. In recent years, the role of professional police departments for relations with the media is increasingly gaining importance. Speed of flow of the information, multitude of media requests and evaluation made by the media that the public is interested in everything that the police is doing, produced a situation where the role of a professional police department for relations with the media has become a necessity, not only in an attempt to create a positive image about the police, but also in responding to daily requests from journalists, and thus satisfying the demands of the public for obtaining accurate information given at the right moment.

Keywords: the police, the media, the public, communication, professionalization, cooperation

INTRODUCTION

The first attempt to formalize the police relationship with the media and the basis of modern policy and practice in this area was the decree made by Sir Nevil Macready, who proposed to establish a "media room" at Scotland Yard, in October 1919. The catalyst for the establishment of such a room was the number of scandals arising from the leaking of information from the police. Leaking of information resulted from informal practice of detectives who used to sell information to journalists. Macready stated in his memoirs that he was concerned about inaccuracies in reporting, and the fact that the police took the money for giving the information. However, he also wrote that he wanted to "break up the cloud of mystery, which Scotland Yard was wrapped in (Mawby, 2002, p.305)." However, the establishment of press offices began only since the late 60s of the last century. Meanwhile, police relations with media were characterized by mistrust of the police to the media and the occasional personal initiative by senior police officers aimed to achieve cooperation (Mawby, 2002, p. 305).The position of police eventually changed, and a negative media coverage and lack of public sup-

port undermined the position of police organizations, that have begun to actively seek ways to improve their image and thus gain community support (Surette, 2001, p.108). The attempts of the British police are very significant and represent a precursor of the modern attitude towards the media. During the 1980s and 1990s, the police became aware of the need to change the way in which they were able to manage their visibility. The reason for these changes lies in the rapid development of technology and media industry restructuring, and managing shift in the public sector (Mawby, 2002, p. 304). Police had to adapt to these new circumstances. Otherwise, there was a risk that their inertia could lead to the initiative of the media in creating public attitudes about crime and security issues. Moreover, it often happens that the police in their activities are very effective, but that the activities related to the issues about which the media report show no success due to the objective reasons. This does not mean that the police are not effective, but it can lead to the formation of such public attitudes.

THE MEDIA AS A LINK BETWEEN THE POLICE ANDTHE PUBLIC

A significant part of the assessment and the image of the general public related to the police work is created by the mass media. It is believed that the relationship between the police and the media is one of the factors that affect the level of public confidence in the police (Juha, Pekka, Gunnar, 2016, p. 70). Furthermore, the media are a key institution in informing the general public about all the issues in the surroundings. This position is taken as a starting premise that the media act as a companion of the information.

The media do not only help in shaping public opinions, but they are able to make certain problems in the public appear as a priority and suppress other issues (Christopher, 2015, p. 405).

In daily activities of the media referring to the reports of crime, deviant phenomena and the activities of the police, the police see the media as an important way to directly communicate with citizens (Chermak, Weis, 205, p. 503). One of the proactive strategies that are used by the police organizations in an attempt to manage external pressure that the police are exposed to is the appointment of a Public Information Officer (spokesman). Their effective communication means that they respond proactively in order to prevent the negative public image, and to influence the creation of support for strategic activities, as well as to provide information and data to meet media requirements. In short, the spokespersons are responsible for representing the police organization in public. Their efforts are crucial to the legitimacy of the police organization. The police officer for public information plays an important role in managing the public image of the police (Chermak, Weis, 205, p. 501).

A study showed that the police are primarily concerned that the media give a positive view of this organization and to create a positive image, and not to give accurate information about the police activities against crime (Eterno, Silverman, 2012, p.150). This circumstance is only partially true. We believe that the police primarily give greater importance to convey accurate information, as well as not to transfer information that, at a certain point, may present an obstacle in performing their activities (e.g. It is not good to give information that the police are looking for a particular person, because doing so, that person receives a direct signal that he / she is the subject of the police investigation and that it is necessary to hide and disable the police to locate and arrest him/her). This fact is very present in the media reports and this makes it difficult for the police to work and indirectly help the offender.

The police admit that professional departments for public relations can be effective in dealing with relations with media. In this effort to win over the media and the public, the

police use many levers of influence. This also includes the classification of what constitutes a crime, the crime rate, and the differences among the cases (Eterno, Silverman, 2012, p.149). It is necessary to always give the correct answer to any of these general issues, and thereby educate media representatives. This is the way to reduce the possibility of speculation or the adoption of incorrect conclusions, and to create trust of the media.

THE PROFESSIONALISATION OF THE RELATIONS BETWEEN POLICE AND MEDIA (ATTITUDES THAT MAY BE ENCOUNTERED IN THEORY AND IN PRACTICE)

One of the forms of professional and institutionalized cooperation may be seen in the UK, where the Information Office was founded. This office is composed of regional media emergency centers in all regions and it has a duty to act in emergency situations, to submit to the Government safety information which should be presented to the public without delay and through independent media. It works at the level of advisory group, and the representatives of the police are involved in its work (Walker, 2011, p.21.). The attitudes in the theory of how the media influence the public and citizens opinion towards the police are different. Some theorists believe that this influence is decisive. Zsolt and Sabo point out the opinion of Gerbner who developed the cultivation theory that emphasizes the influence of the media on the formation of people's attitudes (Zsolt, Szabo, 2011. p. 331). Besides, the results of their study indicate a strong potential of the media to influence the public (Zsolt, Szabo, 2011. p. 335).

In theory we meet the premise of Eterno and Silverman that confirms the results of our research pointing out that this influence is significant because of the critical role of the media. For this reason, they consider that the police approach to the relationship with the media has to be sophisticated and attentive in order to influence the formation of public opinion about the police (Eterno, Silverman, 2012, p. 156).

In addition, Chermak argues that many police organizations significantly improved its media strategy by opening offices for relations with the media, and in that way achieved obvious success in relation to the media (Chermak, Weiss, 2005, p. 503).

Police organizations must be prepared to effectively deal with the media lens, and one of the most popular and most effective forms adopted by the police organization for the management of these relations is the creation of a public information strategy. Reliance on such strategies helps media organizations as it ensures the smooth flow of information to journalists. Many police organizations have improved their ability to work with the media by opening information offices or appointing spokespersons. Appointment of a police officer is an approach that is used to manage the news in the environment, and the importance of the role of these officers has increased dramatically with the technological development and progress (Chermak, Weiss, 2005, p. 503).

Police agencies of all sizes have established Departments of Information tasked to communicate with different audiences, especially with the media. The results of the survey conducted in 2000 show that although most of these services use reactive methods, there are those that use proactive methods that differ from the established model of public relations. The results indicate that these services play a vital role in reporting on the implementation of the law, passing from the closed to the opened system of communication (Motschall, Cao, 2002, p. 152).

Walker argues that there are two common ways of engaging the two parties in their mutual relations:

1. Managerial - in this mode the police although it is a powerful driver of activity in the criminal justice system, and taking into account the flow of information and their types, are establishing communication through the partnership process and interactions with the media. The basis of this approach is a high level of cooperation and mutual reliance of the police and the media to one another, as well as the recognition of independence of the media by the police, their importance and usefulness to society,

2. The relationship of force - in certain circumstances, police can force the media to behave in a particular way in their work through the application of legal authority. This way of the relationship is not common in systems where freedom of the press has an important place on the scale of constitutional freedoms (Walker, 2011, p. 18 – 19).

The Walker's opinion is sublimating views on how mutual relations, which can be found in the theory, can be regulated. Starting from the fact that the goal of any society is the respect for the freedom and rights of all subjects of society, and thus the freedom of the media as important determinants of the grade and level of democracy, the first way presented by this author remains as a proposal of the regulation of mutual relations, and this is a partnership, cooperation, interaction and mutual respect.

Police managers should recognize the needs of the media in critical incidents, including the need for a reasonable amount of information worthy of publication that can be combined with a small amount of video that will satisfy viewers and sponsors etc. (e.g. "audio recording"). In this way, the police managers will be able to effectively manage and mitigate potential conflicts and inherent tensions originating from the competitive spirit of professional roles that the media and the police play in critical incidents, as Caeti, Liederbah and Bellew pointed out (Caeti, Liederbach, Bellew, 2004, p. 94).

These authors also suggest that there is a clear need for the police executives to formulate the "clear rules of engagement" regarding the communication with media. In case that media are present at the scene of an event, the police should determine the conditions where the media will be located, as well as when and how the media will get the information.

This "rule of engagement" also means that the police will be forthcoming in providing a certain degree of information that will be delivered in a timely manner, so that the media can meet their objectives in the specific case. Second, mitigation of potential conflicts includes sincere action by the police and the media. The only cases of real conflict arose when these "rules of engagement" have been violated. If one follows these basic rules, it is in order to mitigate the conflict during the performance of competing professional needs of the police, as well as of the media. Clearly defining the communication "rules of engagement" between police and media representatives may be assisted by using the police officer in charge of information. The primary mission of this police officer is to act as a middleman between the police and the media, as a link between the police and the media (Caeti, Liederbach, Bellew, 2004, p. 95).

There must be rules governing the information to be provided. The information that should not be published include those that could compromise police investigation and confidential information relevant to maintaining public security, or the presumption of innocence (See: United Nations, Code of Conduct for Law Enforcement Officials, 1979, Article 4, General Assembly Resolution 34/169; Council of Europe, Declaration on the Police, 1979, part B, §15). A survey conducted by the Public Relations Agency for the purposes of the OSCE, in the Republic of Serbia, shows that over 90% of journalists supported the fact that the local police have a spokesperson that they can cooperate with (OSCE Mission to Serbia, Media Department, 2010, Belgrade, p. 8). Based on the same survey, the Mission made recommendations for police managers and spokespersons, as well as for media representatives:

Recommendations for police managers and spokespersons:

- proactive approach to communications,• regular meeting with the press once a week,
- regular informal type encounters with the press, once or twice a year,
- creating a special campaign of social responsibility,
- launch of a special PR campaigns;
- video and photo records of an actions,
- adaptation to the needs of the media,
- cooperation with schools in promoting police,
- evaluation of media coverage of events,
- conducting researches on the attitudes of journalists (OSCE Mission to Serbia, Media Department, 2010, Belgrade, p. 9-10).

Recommendations for media representatives:

- it is necessary that journalists know and respect the specificity of the work of the police as well as a legal constraints in communicating the police,
- it is necessary that journalists know where the police work ends, and where the work of the prosecution and the court begins,
- journalists should disclose their identities in contact with the police, journalists hould respect police procedures when they arrive at the scene of crime,
- journalists should not intentionally and knowingly interfere with police work, journalists have the right and obligation to protect confidential sources of information,
- journalists must be careful in revealing the identity of victims of violence,
- material that is made legitimate by a reporter, can be used as evidence in criminal proceedings and police can take it away in accordance with the provisions of the Code of Criminal Procedure (OSCE Mission to Serbia, Media Department, 2010, Belgrade, p. 11).

Mawby found in his study that the increase in the number of daily contacts with media organizations is a permanent phenomenon. In addition, the police service relating to the media recorded increase of demands for connection with the new media (for example providing e-sites), as well as of demands for communication regarding the marketing consultation. The research has shown that lack of human resources is commonly cited as a constraint, because it is impossible to provide an increase in the number of employees to the necessary extent (Mawby, 2008, p.18). Journalists recognize the increasing professionalization of the communication and believe that it has brought mutual benefit. A journalist with 40 years of experience believes that the professionalization of the police communication with the media resulted in the creation of real relationships between the police and the media, compared to the situation of informal contacts of both sides in an attempt to get to the information or to transfer it (Mawby, 2008, p. 21).

Larry Jones points out suggestions for the media to improve relations given by police officers for relations with the media during the research. The ideas that have been mentioned are generally the same in all subjects which are: more honesty, more precision, training of journalists to interact with the officers, prevention of sensationalism in reporting about events, to stop twisting the facts in order to show the law enforcement officials in a bad light, to report positive stories, to make adjustments in treatment and regular meetings with the police (Jones,www.fdle.tape.fl.us/conpent/getdoc/9a5940ba-6100-45e3-86a2092f72480769/joneslarryfinalpaper(1).asp).

In the same survey, journalists have expressed the fact that the media do not have a written policy for relations with the police. Each subject considered that the relationship with the police was fair or good. Each of them thought that their employer is creating a perception in the public of the way the police enforce the law. This opinion was described as neither good nor bad, but true. All of them felt that the application of the law by the police was more proactive in co-operation with the media. When asked what the police should do to improve their relations with the media, the responses were similar to those given by the representatives of the law: honesty, impartiality, proactivity, not to carry out a self-promotion, justice, facilitating access to public records, more co-existence and better explanation of why something had been done. Journalists were also asked of what they could do to improve the relationship. The responses were honesty, patience, not to be judgmental, better training, a written behavior policy and one central contact with the media instead of more reporters inquiring about the same incident (Jones, www.fdle.tape.fl.us/conpent/ getdoc/9a5940ba-6100-45e3-86a2-092f72480769/joneslarryfinalpaper(1).asp).

RESULTS OF THE RESEARCH

The results of the research on the attitudes of the police, media and citizens we conducted, were obtained by Delphi technique in order to identify the average opinion and to create a prediction of future events and trends. In an empirical study, the basic group was composed of employees of the Criminal Police, Police Administration and the Traffic Police, as well as of the representatives of print and electronic media and citizens. In interviewing 1,766 respondents took part. Subjects were divided into three groups as follows: 874 (49.5%) subjects randomly selected from citizens, 261 (14.8%) subjects from the media, and 631 (35.7%) subjects from the police. The respondents from all three groups were from 27 cities in Serbia.

In our paper, we discussed some theoretical views on the impact of media coverage on public attitudes about police and the formation of their image. For this reason, we checked the attitudes of citizens in Serbia on this topic. Over 50% of citizens think that the media have a significant impact on the public image of the police, and a 30.30% think that the media have a partial influence. These results suggest that the manner in which the media report about the police, significantly influence their public image and public opinion about the activities taken by the police.

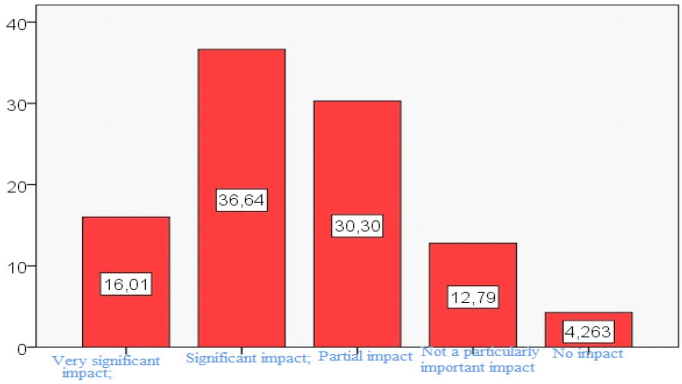


Figure 1: *Attitude of citizens about the impact of the media on the image of the police inpublic*

Regarding the obtained results and the knowledge that we gained that was important for the police, it was necessary to establish the trust of the media with regard to the accuracy of official information provided by the police. The results show that 77.31% of journalists surveyed, believe the accuracy of the information received from the police, and 22.69% of them partially believe.

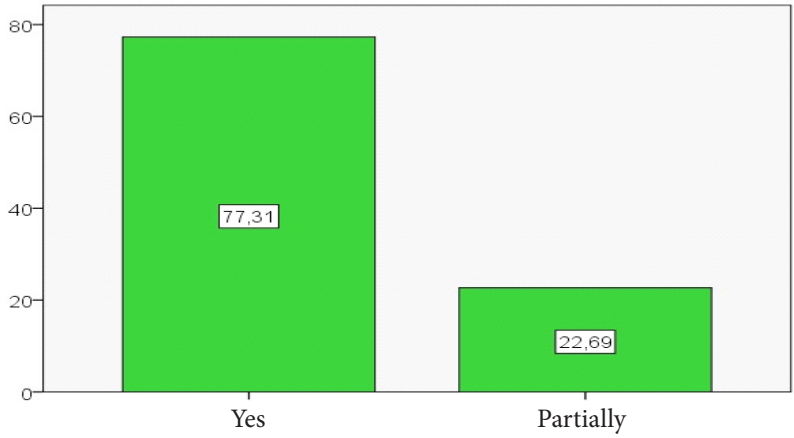


Figure 2: *Journalists attitudes whether the information provided by the police are correct*

Additionally, the vast majority of journalists do not check the information received from the police through other sources. 50% of journalists do never check, 35.38% do so occasionally and only 14.62% of journalists said that they checked the accuracy of information provided by the police. This knowledge is essential for the police because it emphasizes the need to always deliver fast and accurate information to journalists, to the extent that is possible at the moment without jeopardizing the interest of police activities. This means that journalists will be satisfied no matter what kind of information they can obtain, and that police make a mistake if they do not answer and give no information about the event that media representatives consider essential.

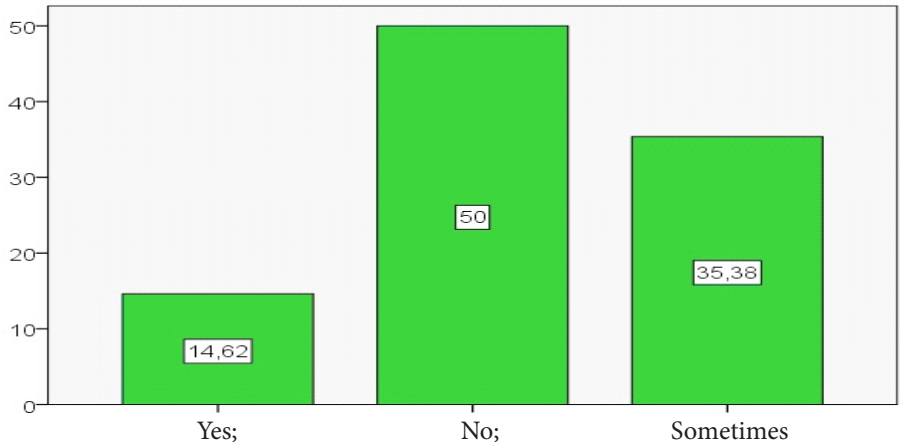


Figure 3: *Journalists attitudes whether they check official police information*

Despite the fact that the media representatives also use other sources of information for their work, we can say that the police use legal and generally accepted resources in order to establish contact with the public media by providing official information that the media accept in most cases without checking their accuracy. It would be wrong to conclude that there is a place for police to give incorrect information and to deceive the media, because it would largely collapse the relationship. On the other hand, the media are inevitably directed to the contact with the police departments for relations with the media. Good personal contacts often established in these conditions are in the best interest of both sides.

Following these conclusions, we checked the attitudes of journalists and members of the police about the circumstances and activities needed to be taken to improve the cooperation and partnership of the police and the media. Media representatives expressed the following views: 45.38% of the group of journalists stated that increase of the mutual understanding of the specifics of the other side tasks is of a very big importance, and a 29.72% believe that it is of great importance. This fact suggests that there is a high level of this circumstance importance understanding shown by media representatives, indirectly expressing the view that it is not entirely so when it comes to their activities.

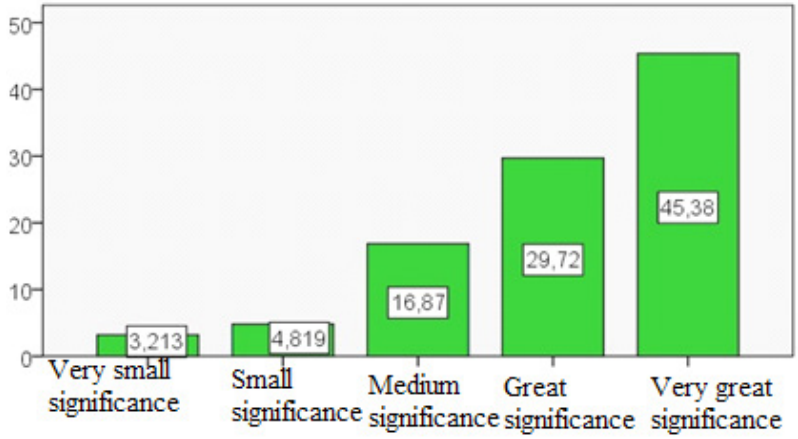


Figure 4: *The views of journalists about the importance of increasing understanding inorder to promote cooperation between the police and the media*

Similarly, the policemen also stated such an attitude. 27.36% of the policemen consider this circumstance is of great importance for improving mutual cooperation, 21.50% give the greatest importance to this circumstance and 34.53% believe that the importance of these circumstances is on the intermediate level. Although it is evident that the two parties emphasize different level of importance of this circumstance, however, we can say that both, the police and the media, attach great importance to increasing the understanding of the specifics of the tasks of the other side in order to define relationship at the highest level.

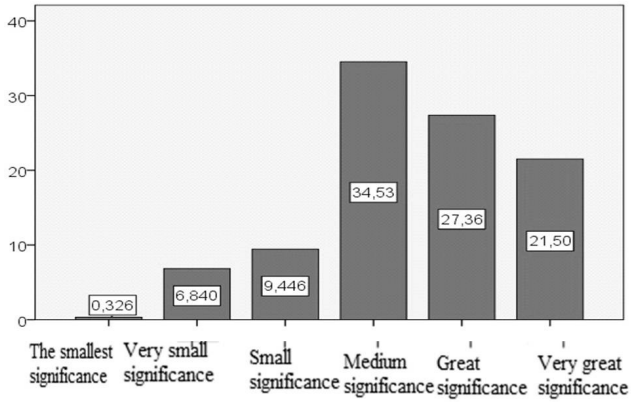


Figure 5: *The attitudes of police officers toward the importance of increasing understanding for the improvement of cooperation between the police and the media*

In addition to the foregoing, there is the fact that the change of content of relationship is initiated by modern police - media reality in which the police, on an equal level with the media, participate in the creation of its image. Therefore, the mutual understanding of both sides is of great importance for building relationships.

The next circumstance on which both sides declared refers to more frequent organizing of press conferences by the police. Journalists voted in a large percentage in favor of the significance of the fact that it is necessary that the police more frequently organize press conferences in order to give information about the activities and matters within the competence of the police. 40.24% journalists believe that this activity of the police has a very great significance, 31.87% that it is of great significance, and 16.73% of journalists give a medium significance to this police activity.

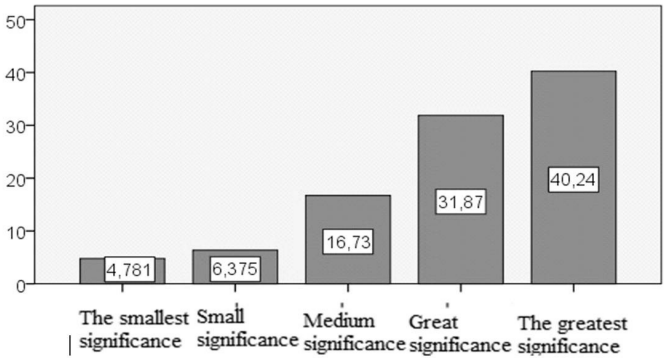


Figure 6: *The attitude of journalists toward the need f or the police to organizemore frequent press conferences*

Police officers have a different view regarding organizing a press conferences. 31.76% of the respondents believe that the organization of press conferences has a medium significance, 30.78% that it is of great significance, and 16.94% that this activity has the greatest significance.

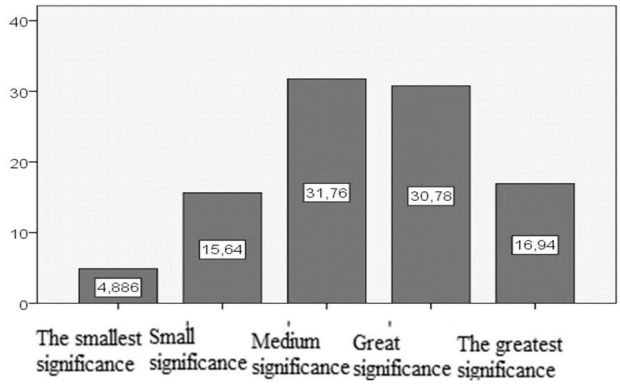


Figure 7: *The attitude of police officers toward the need to organize more frequentpress conferences*

It is observed that the policemen also give a significance to more frequent organizing of press conferences at which the public would be informed about the activities of the police, but the level of its importance is much lower, especially the number of officers who believe that this activity has the greatest significance. The views of representatives of the media and of the police that we obtained in the study were congruent to attitudes we meet in theory. In fact, one of the most common police activities is to issue press releases for media or for the public. This form of communication is superficial and does not allow the media, and thus the public, full access to all police activities or events. This circumstance does not contribute to an objective perception of reality but, on the other hand, it is the easiest way of communication and police use it to the full extent.

The next circumstance of which journalists and police officers declared refers to the need for the media to reduce sensationalism in reporting on police activities, which implies objectivity in reporting. The obtained results demonstrate that media representatives are aware that sensationalism in reporting is very present, and that it is necessary to change such an approach of journalists. 36.95% of the journalists stated that this fact has a very great significance, 22.89% consider that the significance of reducing the sensationalism in reporting is great, and 27.71% think that this circumstance has a medium significance.

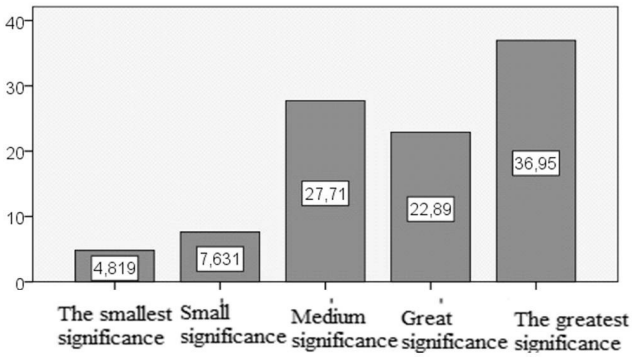


Figure 8: *The attitude of journalists toward the need of reducing sensationalismin reporting*

It is interesting to point out that the police officers have very similar attitudes to those of journalists. Both sides indirectly recognized that this factor is very present in the reporting of journalists and that it is necessary to eliminate it, so it does not burden their mutual relation. 28.38% of the police officers believe that this circumstance is of the greatest significance, 29.85% that it is of great significance, and 27.57% think that this circumstance is of medium significance.

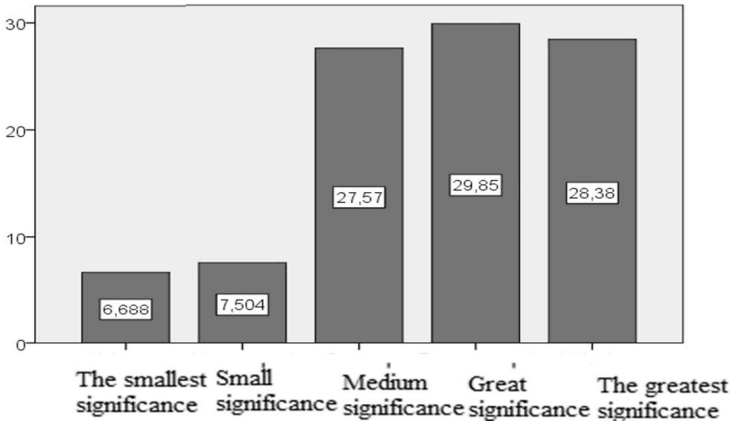


Figure 9: *The attitude of police officers toward the need of reducing sensationalismin reporting by journalists*

The representatives of the media in a large percentage consider that it is necessary that the police often organize conferences, round table discussions and other similar meetings, which would provide direct and honest communication between the police and the media. 32% of the journalists consider that this interaction has a very great significance, 28.4% that it has a great significance, while 19.2% give a medium significance to this activity.

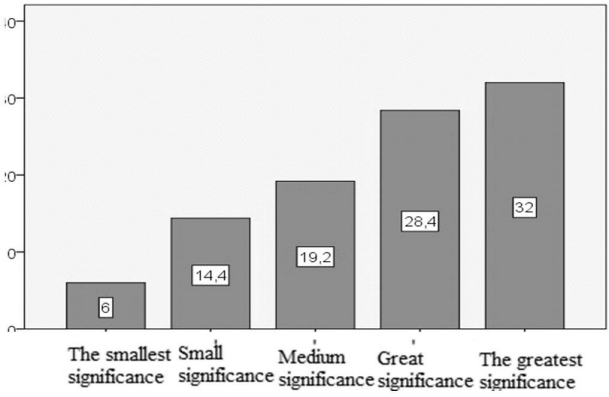


Figure 10: *The attitude of journalists toward the need for more frequent joint organization of conferences, round tables, forums, etc.*

Policemen also recognize the importance of these joint activities to improve mutual relations. Their views are very similar to the attitudes of the journalists. 23.94% of the police officers believe that this activity is of the greatest significance, 28.83% that it is of great significance and the 29.32% that it has a medium significance.

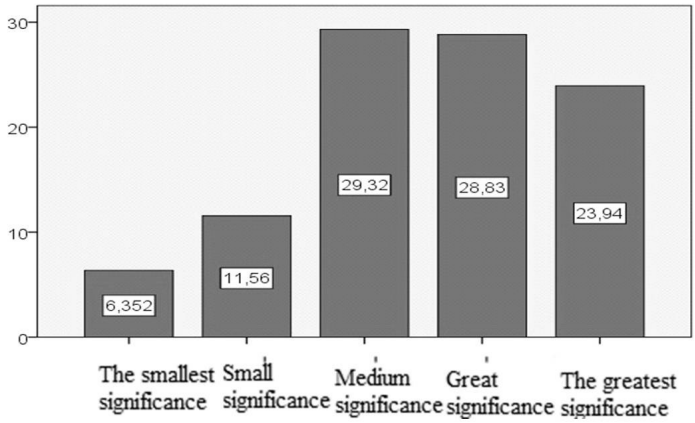


Figure 11: *The attitude of the police officers toward the need for more frequent joint organization of conferences, round tables, debates and other events.*

In theory we find confirmation of the attitudes we have found in the survey. The principle of immediacy is very important to understand the position and the role of both sides, both in society and in their mutual relations. In addition, the organization of such meetings by the police is the opportunity to educate journalists about police actions in various situations, which will help journalists to understand the specific actions of the police when it comes to such situations, which will reduce or completely eliminate the potential dissatisfaction and misunderstanding that may occur.

Media representatives think that it is important to increase the participation of police in the media in the form of interviews, statements and appearances in TV and radio broadcasts. In this way, the representatives of the police are able to communicate with the press and public at the same time, and to clarify in a direct way their activities and any possible doubts about the way the police forces do their job. This especially refers to a situation when the police act in accordance with the law, but it still provokes discontent of majority of the public. 45.2% of the media representatives consider that this circumstance has a very great significance, 32% that it is very important, and 14% give a medium significance to this circumstance.

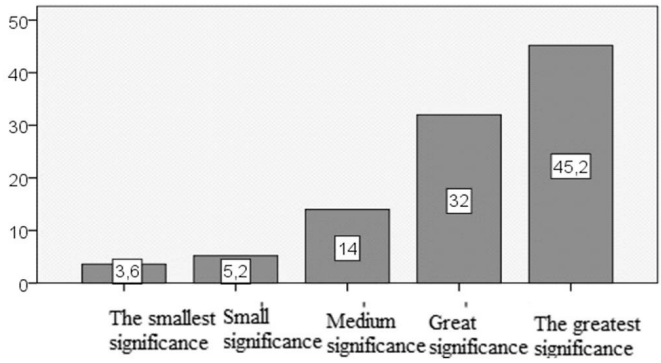


Figure 12: *The attitude of journalists toward the need for increased participationof police in the media*

Policemen also believe that the significance of greater participation of police in the media is great, but not at such a level as media representatives do. 26.51% of the respondents say that this circumstance is of the greatest significance, 32.73% think that its significance is great, and 24.88% give a medium significance to this circumstance.

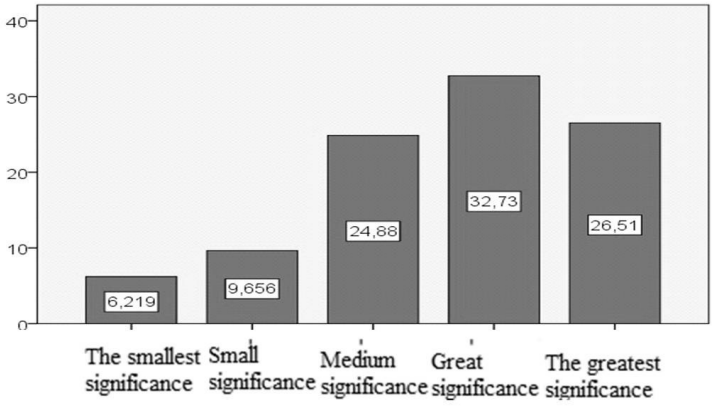


Figure 13: *The attitude of the police officers toward the need for increased participationof police in the media*

After the declaration of the media and the police representatives about the circumstances that were offered in the questionnaire concerning the activities to be undertaken in order to improve relations between the police and the media, both groups of the respondents were given the opportunity to write down what were the necessary steps that should be taken by the police and by the media to improve the cooperation in a way that each group of the respondents declared about the activities of their own and of the other group.

We classified the responses we received in the groups, and the results are as follows: 72 journalists have expressed views that can be jointly defined as the attitude that there is a need for more openness by the police and timely provision of accurate information, 16 journalists consider that more frequent appearances of the police in the media and participation at round tables with journalists are necessary, 11 journalists believe that it is necessary to organize more frequent press conferences, while 15 journalists believe that the cooperation is good and that nothing should be changed. It should be noted that the answers were not given by 49 journalists and answers of 98 of them could not be classified in any category, which represents more than a half of the total number of surveyed journalists. These results indicate that journalists have no defined position on the content of mutual relations, from which the proposals for the cooperation improvement would result. The attitude that emphasizes a need for greater openness of the police towards the media, as well as the need to achieve more frequent contacts with reporters that would be used to provide accurate information are also foundd in the theory.

No	Answer	Number of answers
1.	Greater openness and timely provision of accurate information	72
2.	More frequent appearances in the media and the participation of the police in round tables with journalists	16

3.	To organize regular and other press conferences more often	11
4.	Cooperation is good, and nothing should be changed	15
5.	Other	98
6.	Did not answer	49
T O T A L		261

Table 1: *Media answers on the question what should police do to improve the relationship with media*

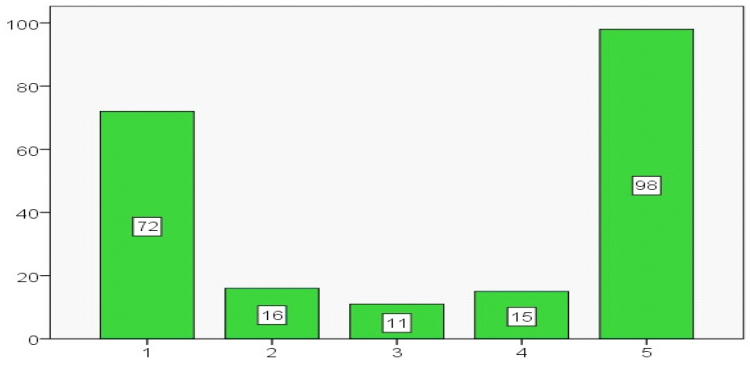


Figure 14: *Answers of media representatives to the question of what police should undertake in order to enhance mutual cooperation*

No	Answer	Number of answers
1.	To show more understanding for the police work	15
2.	To reduce sensationalism in reporting	40
3.	To inform the public about police work more objectively	30
4.	To have more confidence in police work	6
5.	To give police activities more space in media	26
6.	The media work is good, nothing needs to be changed	20
7.	Other	68
8.	Did not answer	56
T O T A L		261

Table 2: *Media answers on the question what should media do to improve the relationship with police*

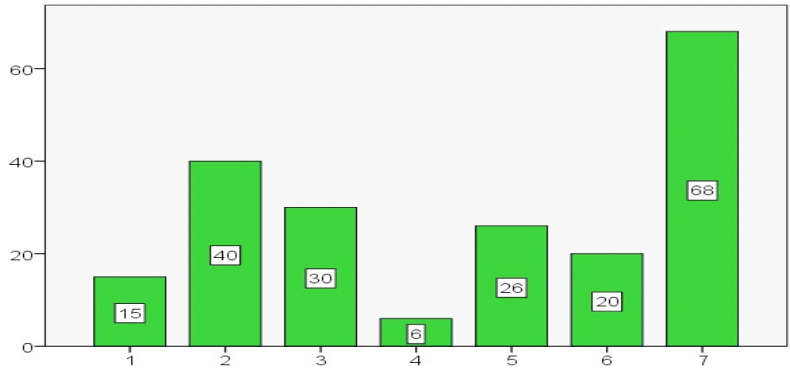


Figure 15: *Answers of media representatives to the question of what the media should undertake in order to enhance mutual cooperation*

The same questions were also given to the police officers who, as well as journalists, expressed their own views on the measures that should be taken by the police in order to improve the cooperation. The answers are as follows: 92 police officers have argued that it is necessary to build mutual trust through more frequent contacts with the media, 50 of them think that more openness of the police towards the media within limits which do not harm the investigation is needed, and 23 police officers consider that the training of media representatives on the scope of work of the police is necessary. 47 police officers consider that the cooperation is good and that nothing should be changed.

We note that also in the case of police officers, many of them gave an answer that could not be classified in any category, and those who did not respond. The total number of such responses was 261.

No	Answer	Number of answers
1.	Timely submission of accurate information	31
2.	Building of the mutual trust through more frequent contacts with the media	92
3.	Greater openness towards the media in the range that does not disturb the investigation	50
4.	Education of media on the scope of police work	23
5.	Cooperation is good, and nothing should be changed	47
6.	Other	127
7.	Inadequate answer	32
8.	Did not answer	229
T O T A L		631

Table 3: *Answers of representatives of police to the question what police should do to improve the relationship with media*

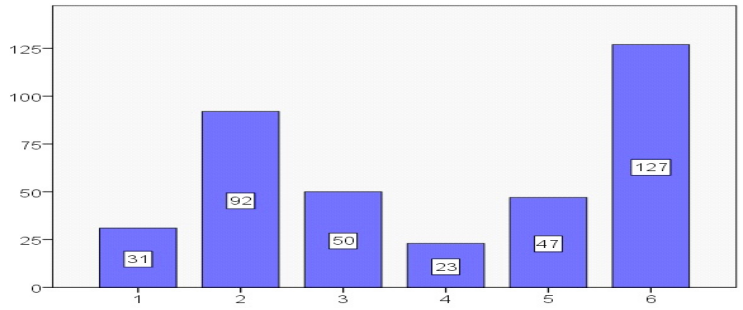


Figure 16: *Answers of policemen to the question of what police should undertake in order to enhance mutual cooperation*

The results obtained during the study of attitudes of police officers of what they need to do in order to improve cooperation, suggest that, first of all, it is necessary that media reduce sensationalism and to objectively report on the work of the police. It is an attitude of 176 surveyed police officers. 59 of them believe that it is necessary for the media to have more understanding, trust and patience in dealing with the police, 33 of them believe that it is necessary to educate journalists on reporting on the work of the police, and 31 police officer consider that it necessary to give more media space to the police activities. Only 7 police officers believe that the cooperation is good and that nothing should be changed. In this, as in previous cases, a large number of respondents did not answer or they gave an answer that could not be classified in any category - 325 of them from a total of 631 subjects.

It can be said that, as well as media representatives, police officers in both cases stand to statements that they previously were offered in the questionnaire, and that they had no new proposals.

It should be noted that the representatives of the OSCE mission in Serbia (which has already been discussed), dealing with the topic of relations between the police and the media, gave recommendations for both sides in order to improve the communication on both sides. The views of journalists and police officers that we obtained in our survey are largely contained in the recommendations made by the OSCE Mission. From this we can conclude that in Serbia, both sides are aware of the need for a professional cooperation in mutual interest, as well as of the needs and concerns that both parties have in their work.

No	Answer	Number of answers
1.	To reduce sensationalism, to objectively and accurately report on police work	176
2.	Education of journalists for reporting on police work	33
3.	To have more understanding, trust and patience in dealing with police	59
4.	To give more media space to police activities	31
5.	Cooperation is good, nothing needs to be changed	7
6.	Other	91
7.	Did not answer	234
T O T A L		631

Table 4: *Answers of the representatives of police on the question what the media should do to improve the relationship with police*

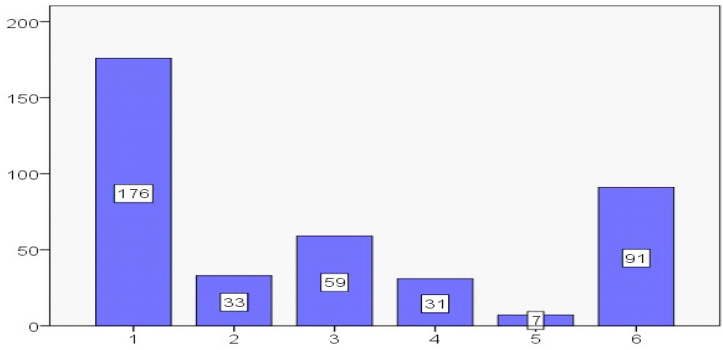


Figure 17: *Answers of police officers to the question of what the media should undertake in order to enhance mutual cooperation*

CONCLUSION

Improving relations between the police and the media is a very important activity and imperative to police organizations, as well as to the representatives of the media, because the achievement of public interest to be accurately and timely informed about the security issues in the community is directly dependent on this activity. The formation of community attitudes towards the police and its activities in the modern world is conditioned by the level and quality of established relations between the police and the media, since the influence of the media on the status of the police in the society is great. The results of our research directly indicate this fact. For this, we are talking about the organization and professionalization of relations, including the understanding about the relevant circumstances that are of importance for both sides. However, it should be noted that there are no universal rules that would define mutual relations, because they depend on the degree of social development, overall relations in a community, security issues and other factors. Therefore, it is not possible to normatively regulate this area, but it is possible to establish the rules of conducting in order to help both sides achieve their goals in the interest of the community in which they exist.

Police in contemporary society take actions in order to establish the cooperation with the media, because it is very important to be presented to the public in a positive way. This observation is confirmed by the fact that journalists in Serbia have confidence in the official police information to a great extent, that it is desirable when it is timely and accurate, and that it must not be checked through other sources in these circumstances.

The question is what action is necessary to be undertaken to help both sides to achieve the highest level of professional relations and to fulfill their activities. The obtained answers can be classified into the following categories:

- a greater understanding of specific tasks of the other side,
- that police more often organize press conferences at which the media would be provided information of the interest,
- that it is necessary to allow a greater police presence in the media,
- that it is necessary for the police to more often organize conferences, round tables, forums and other similar meetings, which would provide direct and honest communication,
-that police show greater openness to the media within the limits that do not disturb the investigation,
- that the police deliver timely and accurate information to the media,

- that media do not report on security events and activities of the police in the sensational way,
- that the media objectively inform the public about the activities of the police,
- to carry out education of journalists on police activities,
- that the media show higher level of understanding, trust and patience in dealing with the police.

Subject to the above statement and by undertaking activities aimed at their implementation, both sides will create the basic conditions for the full professionalization of mutual relations and the realization of their goals.

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INTERNAL COMPETITION IN THE MINISTRY OF INTERNAL AFFAIRS AS MEANS OF IMPROVING THE EQUAL OPPORTUNITIES SYSTEM FOR WOMEN AND MEN

Marina Vasić, MSc[1]
Ministry of Interior of the Republic of Serbia

Abstract: The human resource management function in the Ministry of Interior is done by an organizational unit for human resources. This function, among other things, is accomplished through professional planning, recruitment, selection, as well as the protection and promotion of human rights and equality. By adopting the Rulebook on the Implementation of an Internal Competition among Employees of the Ministry of the Interior in 2016, an important step has been made towards improving the system of equal opportunities for women and men and preventing discrimination in the field of labor. This created opportunities for the equal availability of all positions for both women and men under equal conditions. Taking into consideration there has been just over a year since the beginning of the implementation of the internal competition procedure in the Ministry, it is still difficult to conclude how much its introduction has been recognized as an opportunity for equal promotion and career development of women and men. However, creating gender-responsive strategies, a policy of equal opportunities and HRM practices in the Ministry of Interior Affairs will not make much sense if employees and executives do not understand its significance. This paper analyzes the possibility of achieving equal representation of women and men employed in police affairs, but also in managerial positions through an internal competition in the Ministry, since women are disproportionately represented at senior and strategic level positions.

Keywords: human resources, internal competition, recruitment, selection, gender equality, discrimination

INTRODUCTORY REMARKS

Equality of the sexes is one of the basic constitutional principles. Compliance with this principle and prohibition of discrimination is the basis for the achievement of human rights established by the Constitution and numerous international documents ratified by the Republic of Serbia. The process of European integration of the Republic of Serbia requires that the international standards proclaimed in the EU acquis be respected in the achievement and protection of basic human rights. The aforementioned process contributed to the improvement of our country's legislation in the area of gender equality, as well as the strengthening of institutional mechanisms for the promotion of gender equality.

1 E-mail: marina.vasic@mup.gov.rs

Under the gender equality, the Gender Equality Law ("Official Gazette of the Republic of Serbia" No. 104/09) implies "equal participation of women and men in all areas of the public and private sectors, in accordance with the generally accepted rules of international law, ratified by international agreements, the Constitution of the Republic of Serbia and laws, and everyone is obliged to respect it" (Article 2, paragraph 1).

The issue of gender equality in the Ministry of Interior and the equal representation of women and men in police affairs and managerial positions is not only a matter of human rights and equal opportunities, but also the issue of developing a police organization. Respecting diversity and creating equal opportunities for women and men, in addition to the greater competence of the police organization, also contributes to providing a more adequate response to many security challenges in society.

In recent years, the Ministry of Interior has intensified its activities on gender equality. This is evidenced by the current project "Developing a Gender Agenda in the Ministry of Interior 2016-2018", aimed at achieving an adequate gender representation at all levels in the police in the long term. In the framework of the aforementioned project, at the beginning of 2018, the Ministry prepared a document "Guidelines for implementation of measures for achieving gender equality in the Ministry of Interior of the Republic of Serbia through a human resources management system". The guidelines are designed to include systemic measures in all key HRM areas (recruitment, selection, career development, etc.), which will contribute to the equal representation of women and men in all workplaces and in all organizational units of the police, and in particular the greater representation of women in police affairs and management positions (Guidelines, 2018: 1). Also, in the adopted Strategy for the Development of the Ministry of Interior for the period 2018-2023, the Ministry expresses a firm resolution for "improving the system of equal opportunities in human resources management, further development of protection from gender based discrimination and sexual harassment, creating preconditions for systemic supporting women through the establishment of a Women's Police Network in Serbia and the gender sensitization of the operater – decision-maker" (Strategy, 2017: 7).

However, in spite of the fact that the Ministry has undertaken numerous activities in the field of gender equality in recent years, there is still an unequal representation of women in certain organizational units and in certain job positions, as well as uneven gender representation in relation to decision-making positions in favour of men.

For generations back, women are represented on certain types of jobs that informally apply to "women's jobs" and it's more difficult for them to break into "male jobs" (Bjeloš et al, 2012: 8). They are predominantly, and perhaps even in larger numbers than men, represented in the Human Resources Sector, the Material and Financial Affairs Sector, the Sector for International Cooperation, European Affairs and Planning, the Secretariat, the Cabinet of the Minister, and most often in the workplaces which have the status of "Certain duties" and "Special duties" or jobs without status, while only a small number of women in relation to the total number of employed women in the Ministry apply the police powers. Thus, men are traditionally and far more in comparison to women represented in positions which have the status of "Authorized official person" and "Uniformed authorized official person". Gender inequality is present in managerial jobs, as well. The presence of women is growing at lower decision-making places, especially in executive workplaces that have no impact on decision-making. For example, out of 27 police authorities within the Police Directorate, there are only two women that perform duties of the Chief of the Police Directorate. In many other leadership positions, practically at all levels of leadership in the Ministry (operational, middle, high and strategic), men are represented in far greater number than women, especially in the police force. This is the most visible example of a violation of the principle of gender equality

in the field of promotion to higher ranks and career development of members of the Ministry. Although the current situation regarding the integration of women in the police profession and their vertical mobility is better than it had been in the previous decade, it is still difficult to say that the issue of career development of women in the police is at a satisfactory level. However, without any doubt, there are elements of autoselection among women in the police profession as well, due to the numerous problems and difficulties encountered during their careers, which often results in their lower hierarchical mobility towards managerial positions.

The underrepresentation of women in higher decision-making positions is significantly influenced by traditional understanding of gender roles, as well as stereotypes and prejudices about men as better leaders than women. Patriarchal gender stereotypes make it more difficult to achieve gender equality in the police and pose a challenge in the way of emancipating women in general. One of the dominant stereotypes is the role of a woman who attributes them exclusively to a biological role, which in the police profession means granting them auxiliary and administrative jobs (Brent, 2008: 10). Often, such and many other stereotypes can be heard from women themselves.

Integrating the principle of gender equality and visibility of women at all levels of the police organization and creating equal conditions for the advancement and career development of women and men is one of the factors of modernization and democratization of the Ministry and society in general. By adopting the Rulebook on the implementation of an internal competition among the employees of the Ministry of Interior, at least formally the possibilities for equal participation of women and men in the election procedure for the selection of candidate for vacant posts have been created. However, laws and regulations are not sufficient themselves, unless activities aimed at raising operators' awareness of the importance of women's participation at all levels of the police organization are carried out in parallel. Also, the question arises as to whether the women themselves have recognized an internal competition as a mean of improving a system of equal opportunities and preventing the uneven representation of women in police work, especially in managerial positions, but also how much they are personally prepared and motivated to prove themselves in the police profession.

INTERNAL COMPETITION IN THE MINISTRY OF INTERIOR FROM THE POINT OF VIEW OF GENDER EQUALITY

Getting employment in the Ministry through a competition is foreseen for the first time in the Law on Police from 2016 ("Official Gazette of the Republic of Serbia", No. 6/2016). According to this law, the employment is based on a competition, except in cases of admission of candidates from higher education institutions that are educated in accordance with a special study program for the needs of the Ministry, based on a previously concluded contract and the transfer of a civil servant under the takeover agreement from another state authority (Article 135). The new Law on Police from 2018 ("Official Gazette of the Republic of Serbia", No. 6/2016 and 24/2018) also provides for the establishment of an employment contract through a competition, but in relation to the previously adopted Law, it regulates the manner of establishing a labor relationship in more detail, that "the employment relationship in the Ministry can be based only on the places envisaged by the act on internal arrangement and job classification, which are not filled in, and in cases when the filling of that post is in accordance with the personnel plan issued by the Minister" (Article 135, paragraph 2).Also, by the Police Act of 2018, it is also envisaged that for certain positions defined by the Act on Interior Design there will be no competition, and new categories of persons who can establish employment in the Ministry without a competition are introduced. In this sense, it is foreseen to establish

an employment without a contest of "spouses and children of persons who have lost their lives or have been wounded in or for the performance of official duties, with the fulfillment of conditions for work in a certain position" (Article 135, paragraph 3, point 3). The new Law also foresees more restrictive conditions for the establishment of employment without a competition in cases of admission of candidates who have completed studies at higher education institutions that are educated in accordance with a special study program for the needs of the Ministry. The condition for the establishment of employment without the competition of the mentioned category of persons is that during the studies they had concluded a contract for any year of studies, or that their studies were financed from the budget of the Republic of Serbia (Article 135, paragraph 3, item 2). From the aforementioned legal formulation, it can be concluded that it is not envisaged to establish a working relationship without the competition of self-financing students.

The internal competition represents a more recent practice of filling vacancies in the Ministry of Interior, introduced by the Law on Police from 2016. Article 136 of the aforementioned Law prescribes that on the proposal of the head of the organizational unit, who is in charge of requesting a full vacant post, within 30 days from the date of vacancy, the organizational unit responsible for human resources management issues an internal competition on the bulletin board of the organizational units. In the same article, the law stipulates that until the workplace is filled in, the acting head will be appointed on the proposal of the competent manager. The current Law on Police from 2018, in almost identical ways, regulates the call for an internal competition. In relation to the previous legal formulation from 2016, it was added that the organizational unit responsible for human resources management issues an internal competition "after determining the fulfillment of the conditions for filling a vacancy". Although without aforementioned legal formulation, the task of the organizational unit responsible for human resources management was to determine whether the conditions for filling a vacancy were fulfilled, or whether the position was envisaged by the act on internal organization and systematization of jobs, whether vacated, such legal formulation is justified, since the internal competition is not called by automatism after the competent manager delivers the proposal, but after determining the fulfillment of the conditions for the filling of that workplace by the organizational unit responsible for human resources management.

The Rulebook on the Implementation of an Internal Competition among employees of the Ministry of Interior entered into force in 2016, and its implementation began on January 1, 2017. The first internal competitions were called for the completion of ten high-level management posts for the heads of the Police Administrations.[2] By introducing internal competitions, transparency in filling vacancies in the Ministry has been increased, clear criteria for selection of candidates have been defined, as well as the abolishment of the practice of filling in vacant posts, which enabled gender-based discrimination.

The proposal for completing a post via an internal competitions submitted to the organizational unit responsible for human resources management by the head of the internal organizational unit and the organizational unit at the headquarters and outside the headquarters of the Police Directorate where there is a need for filling a post (Article 2, paragraph 1 of the Rulebook). Upon submission of the proposal, the head of the organizational unit responsible for human resources management determines whether the conditions for filling a job are fulfilled,[3] after which the Minister of Interior decides on the need and the manner of completing the position (Article 3 of the Rulebook).

2 The first internal competitions were called for the filling of posts: the Chief of the Police Administration in Čačak, Bor, Vranje, Zaječar, Kragujevac, Leskovac, Novi Pazar, Pirot, Užice and Subotica

3 Determining the fulfillment of the conditions for the completion of the workplace means determining whether the position is stipulated by the act on internal arrangement and job classification and whether the post is vacated

For the implementation of an internal competition among employees of the Ministry, the Competition Commission is appointed by a rescript (Article 4, paragraph 1 of the Rulebook). The nominators for the appointment of the members of the Competition Commission are the head of the organizational unit responsible for human resources management and the Minister of Interior, depending on the level of management[4] of the job that is filled in through an internal competition. In this regard, for executive positions and positions of operational and intermediate management, the members of the Commission are appointed by the head of the organizational unit responsible for human resources management, while the members of the Commission for the filling of posts at a high and strategic level of management are appointed by the Minister (Article 4, paragraph 2 and 3 of the Regulation). The commission consists of three members, one of which is a member of the organizational unit responsible for human resources management (Article 4, paragraph 4 of the Rulebook). Therefore, it can be concluded that the Rulebook precisely determined only the number of members of the Competition Commission, and in part the composition of the Commission. Namely, the Rulebook foresees that the Commission is a three-member panel, determining at the same time that one of the members is a representative of the organizational unit responsible for human resources management. The Rulebook, therefore, did not precisely determine who could be members of the Competition Commissions, and the right to nominate the members of the Competition Commissions was left to the competent manager who proposed the filling of the post. Such regulations also enable the heads of organizational units to act as members of the Commission of Competition, whose task is to carry out, together with other members of the Commission, the election procedure for the selection of candidates to the position they have proposed, and after the completion of the electoral process and the ranking of candidates, the decision to select the candidates would again be under their jurisdiction.

In the defined Guidelines for implementation of measures for achieving gender equality in the Ministry through the human resources management system, as one of the activities regarding the composition of the Competition Commissions, it is envisaged to amend the Rulebook in that part, according to which the Commission would be consisted of at least 30% of less represented gender. Also, these guidelines provide for the training of members of the Commission on Gender Based Discrimination, as well as the evaluation of their work and selection process in order to identify indirect, unintentional gender-based discrimination (Guidelines, 2018: 15).

The text of the advertisement[5] on the internal competition is published on the Ministry's intranet and on the notice board of the organizational unit in which the position is being filled

4 The posts of police officers are divided into managerial and executive positions. The management positions of police officers are classified into four categories, depending on the complexity of jobs, education, work / rank, level of responsibility and decision-making power, as well as independence in work, to managerial positions: strategic, high, medium and operational levels. See: Law on Police, "Official Gazette of RS", no. 6/2016 and 24/2018, Art. 147 and 148; Decree on the criteria for the distribution of managerial positions of police officers, "Official Gazette of RS", no. 8/2017

5 The advertisement on the internal competition contains information on: the organizational unit and the place of work; workplace; job description, or tasks and duties at the workplace; conditions, that is, the necessary education, special skills, abilities and skills, work experience necessary for working in the workplace; the title i.e. the rank necessary for performing tasks and jobs; the date of the advertisement of the internal competition; deadline for filing applications; the address to which they are submitted; personal name, contact telephone and e-mail address of the person in charge of giving notice of the internal competition; skills, knowledge and skills assessed in the electoral process and the manner of their check and the order of checking and assessing the fulfillment of the established conditions; the evidence to be enclosed with the application, as well as a note on who, according to the status that he has and the required working conditions, has the right to participate in the internal competition and which evidence is not obliged by the participant, but could be attached, as well as the evidence that he obligatory encloses. See: Rulebook on the Implementation of an Internal Competition among Employees in the Ministry of the Interior, "Official Gazette of the Republic of Serbia", No. 73/2016, Art.

(Article 5, paragraph 1 of the Rulebook). This ensures the right of employees to be informed about posts in the Ministry, which has been found to be in need of completion, which is stipulated by the Law on Police. In this way, it can be freely stated, for the first time, a transparent practice of advertising posts in the Ministry has been introduced and clear criteria for evaluation, ranking and selection of candidates have been established.

Since the beginning of the implementation of the Rulebook on the implementation of an internal competition among the employees of the Ministry of Interior, 188 advertisements have been published on the internal competition for completing 253 jobs, i.e. transfer or deployment of 290 employees.[6] The highest number of published advertisements was announced for the completion of executive posts (126 posts, or 49.8% of the total number of published advertisements).Then, the positions of the operational level of management follow (57 posts, or 22.5% of the total number of published ads), then the positions of the middle management level (46 posts, or 18.2% of the total number of advertisements published) and, finally, high-level management positions (24 posts, or 9.5% of the total number of published ads)[7]. Therefore, it can be concluded that almost half of the published advertisements have been announced for the completion of executive posts.

All employees of the Ministry of Interior have the right to participate in the internal competition, which is clearly indicated in the ad text itself. From the previous practice of conducting internal competitions in the Ministry, it can be concluded that there was nothing discriminatory in the advertising procedure itself. This refers primarily to specifying traits, characteristics, skills or evaluating certain abilities that more often belong to members of a particular sex, which would constitute indirect discrimination.[8] Thus, all employees in the Ministry, regardless of gender, age, and status of the post where they are currently deployed, have the right to apply for an internal competition. The only "restrictions" when submitting applications for an internal competition relate to compliance with the requirements of the Rulebook on internal organization and job classification in the Ministry of Interior, that is to say, respect for formal and legal conditions (degree and type of professional qualifications, length of work experience or vocation, rank of a police officer).

Bearing in mind the underrepresentation of women in certain workplaces and in certain internal organizational units, it is necessary to take into account that the texts of the advertisements should be affirmative, i.e. that their content should encourage and stimulate sufficient number of qualified women to apply for the competition and enable their professional development. This is of paramount importance for encouraging women to participate equally with men in the electoral process and in this way to remove formal and informal obstacles for the advancement of women in the police and division of jobs into traditionally "male and female".

The remains of the traditional understanding of gender roles greatly influence the creation of the "glass ceiling" phenomenon. The term glass ceiling includes obstacles that women face in professional advancement, especially when moving to managerial positions. This phenomenon has its roots in the patriarchal social structure and gender stereotypes. The traditional perception of masculinity (possession of power and authority) in society created the image of

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6 The number of published advertisements refers to the period from February 2017 to the end of May 2018.

7 Data on the number of published advertisements are available on the intranet of the Ministry of Interior.

8 According to the Law on Gender Equality ("Official Gazette of the Republic of Serbia" No. 104/2009), indirect discrimination is "any unjustifiable differentiation, exclusion or restriction which, in the same or similar situation, puts a person or group of persons, on the basis of sex as a personal property, in a more unfavorable position by passing an act or by performing an act that is apparently based on the principle of equality and non-discrimination".

the police as a profession of men (Kesić, 2011: 165). The effects of a glass ceiling can be seen in the discouragement of women to manage their careers in a predominantly male collective, forming fears of advancement due to the role that she is expected to perform as a woman's manager. In this way, acting in accordance with the expected gender role, women themselves, by autoselection, produce gender inequality in managerial workplaces. The confirmation of that is the fact that there is also an incomparably smaller number of women in relation to men who submit applications for internal competitions to fill job vacancies, especially to fill jobs in regional police administrations. For example, the number of women who filed applications for internal competition for filling jobs in regional police administration in the first half of 2018, is around 7,7%. The situation is somewhat better when it comes to filling vacancies at the headquarters of the Ministry, that is, the headquarters of the Police Directorate (about 30,7% of women filed an application for the announced internal competition in the first half of 2018). Bearing in mind such statistical indicators, it can be concluded that women still do not adequately recognize the internal competition as a means of preventing the uneven participation of women in police work, especially in managerial jobs.

The electoral procedure itself includes the following phases: checking fulfillment of formal and legal requirements, verification of technical competences (knowledge and skills) of candidates, assessment of basic competencies, medical examination and interview (Article 9 paragraph 1 of the Rulebook). Each of the aforementioned phases of the electoral procedure is eliminatory for a candidate who does not meet the criteria of the check referred to in the previous section (Article 17 of the Rulebook). In the electoral procedure, the Commission may check and evaluate only those professional qualifications, knowledge and skills of candidates and other necessary conditions, which are stated in the advertisement on the internal competition (Article 9 paragraph 3 of the Rulebook). The modes and criteria for assessing candidates are defined in the Rulebook and apply equally to all candidates, without discrimination on any grounds. Therefore, the professional competence, knowledge and skills assessed by the Commission in the election procedure are determined by the text of the advertisement, which is published on the Ministry's intranet and on the notice board of the organizational unit in which the job is being filled and as such are equally accessible to both women and men.

After the conducted electoral procedure, the Commission shall make the final ranking list, which shall consist of a maximum of three candidates, which according to the obtained estimates are best ranked, and from which the manager referred to in Article 2, Paragraph 1 of the mentioned Rulebook, makes the decision on the candidate's choice (Article 18 and 3 of the Rulebook). There is no provision for a manager who has proposed a full vacancy not to choose a candidate from the selection list. There is no possibility for the manager who proposed the filling of the vacancy to avoid the selection of a candidate from the selection list. Also, it can be concluded from the above provision that neither the obligation of the manager to select the first ranked candidate from the ranking list is foreseen. Therefore, it is his discretion to select any candidate from the selection list after he has examined the bidding documents, or the results achieved by the participants in the election process. In addition to leaving the possibility for the manager to select the candidate who did not achieve the best results during the election procedure, but often it is an employee who, because of the increased volume of work, already performs the duties of an executive post that is being filled by an internal competition, or in the case of a vacant managerial position appointed as the Acting Officer until the completion of the election procedure, such regulation has provided the possibility for measures of positive discrimination in the selection of candidates.

The application of affirmative measures in the selection of candidates is also envisaged as one of the activities for attracting and employing more women to perform police tasks within the Ministry, within the framework of the aforementioned Guidelines for the implementation

of measures for achieving gender equality in the Ministry through the human resources management system. Namely, affirmative measures envisage the possibility of giving priority to the candidate of a less represented gender, depending on the gender structure of the organizational unit in which the job is being filled, in case the candidates are equally ranked and when it is possible due to the nature of the job (Guidelines, 2018: 16). In practice, when it comes to filling high-level positions, this means that if there are more candidates equally ranked on the ranking list, it is necessary to give priority to women because of the lower representation of women in high management positions, in most of the organizational units of the Ministry. Although the application of affirmative measures in special circumstances is considered appropriate and justifiable for achieving greater representation of women in managerial positions, it is also expected that they may result in an increased number of complaints by the participants of the internal competition on the decision on the transfer or deployment of the selected candidate.

Bearing in mind the fact that in special police units there are traditionally fewer women than men, as an example of an internal competition to which a woman has been appointed according to the electoral procedure, an internal call for a job vacancy may be announced in the Unit for Security of Certain Persons and objects. The mentioned competition represents an example of positive selection, where gender affiliation and traditional gender structure in special police units did not show the advantage of men in the selection process. Examples of negative selection, i.e. internal vacancies in which men are in favourable position in comparison to women during the selection of candidates, but also in the election process itself, are difficult to talk about given the much smaller number of women applying for internal competitions, especially in the competition for filling in managerial jobs.

Since the heads of the organizational units of the Ministry who have proposed filling a post via an internal competition are usually the decision-makers on the selection of candidates, it is also necessary to undertake activities on the so-called "Gender sensitization of managers". Gender sensitization of decision-makers in order to more effectively support all women's empowerment processes in the Ministry was also recognized as one of the goals of the project "Developing a gender agenda in the Ministry of Interior 2016-2018". The significance of the training of senior managers in the area of gender equality stems from the fact that they are the main bearers of the changing attitudes and rooted values of employees in their organizational units. Raising the awareness of managers and employees on gender equality and the value of women's selection at all levels of the organization is essential to ensure that the advancement of women in the police is not limited to formal and informal obstacles.

However, the adoption of regulations and the implementation of policies aimed at improving equal opportunities for women and men will not have the effect if women themselves do not understand the significance of such measures, and if they, by autoselection, contribute to gender inequality due to cultural barriers, gender stereotypes and prejudices, but also due to the difficulties of harmonizing professional and family of life. It is therefore necessary to provide support to the personal and professional empowerment of women.

CONCLUSION

Gender equality in the Ministry of Interior requires the elimination of discrimination, especially the hidden discrimination of women. In the last decade, a set of laws has been adopted aimed at guaranteeing the equality of women and men and defining the direction of action for the purpose of improving the status of gender equality. However, in spite of the legal

framework and political will to fulfill obligations in the field of achieving gender equality in all areas of public life, the impression is that the steps forward are still quite modest.

The position of women in the police largely reflects the picture of their position in the society. The representation of women in the police is a precondition for the development of a society and the confirmation of its democracy. Although the prevailing overview of the police profession as a "male job" remains, this understanding is, albeit slowly, gradually altering, thanks to reform processes in the security sector and the inclusion of the gender dimension.

One of the basic principles for respecting gender equality is the elimination of negative gender stereotypes and discriminatory practices towards women, which produce an unequal relationship of power between women and men. Different stereotypes about women as managers in the police often influence their perception of such a role as a factor that could endanger their family and private life. In this way, the women themselves contribute significantly to gender inequality in managerial positions. In order to improve such measures, in addition to determining the state of affairs, it is also necessary to investigate the perception of women in terms of understanding their own role in society, how much important is gender equality from women in the police, how they perceive and how they experience their position in the police organization, as well as what are their attitudes towards the existence of discrimination and prejudice in the police organization, how familiar they are with the mechanisms of protection against discrimination, etc.

Given that internal competitions represent a new practice in the Ministry of Interior, it is necessary to develop gender-sensitive statistics in this segment (how many women and men participated in internal competitions; how many women and men were admitted to the competition and to which the workplace; the degree of efficiency of women and men in the electoral process, according to the phases; in how many cases positive discrimination measures have been applied; the number of affirmative advertisements published; the number of appeals lodged on the decisions on relocation or deployment of the elected candidates, etc.). The database of statistical data is a set of indicators that allow for the understanding of the real state of gender equality. Regular and comprehensive monitoring, analysis and presentation of gender-sensitive data is an indispensable tool in the implementation of the gender equality principles and allows for the examination of gender discrimination in the police. Interpretation of statistical data from a gender perspective should contribute to the creation and more effective implementation of a policy aimed at removing gender inequalities in the police and promoting equal opportunities for women and men.

Also, one should not neglect the fact that internal competitions allow only "redistribution" of existing resources in the Ministry. Therefore, it is necessary to undertake affirmative measures of women's recruitment to the Ministry, which will guarantee equal opportunities for promotion and career development. By adopting the Guidelines for implementation of measures for the realization of gender equality in the Ministry of Interior of the Republic of Serbia through the human resources management system, the Ministry establishes continuity and confirms the determination to pursue the path of improving the system of equal opportunities for women and men and the prevention of discrimination.

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Topic IV

CONTEMPORARY SECURITY CHALLENGES

CHALLENGES OF INCLUSIVE SECURITY[1]

Dr Zorica Mršević,[2] Senior research fellow
Institute of Social Sciences, Belgrade
zmrsevic@idn.org.rs

Mr Svetlana Janković
Faculty of Security Studies, University of Belgrade
svetlana.jankovic.cacak@gmail.com

Abstract. Inclusion within the security sector has become one of the priorities of the national security of many EU Member States. The reason for this introduction of inclusive security has been rationally observed as the security interest of countries of diverse population composition which are faced by modern security risks. This concept enables women and members of various national and religious minority groups to be included, without discrimination, in the security sector of the countries of their citizenship. It is well-known that women have been too often asked to assist in stabilizing a country throughout history, although this has primarily happened in the wake of conflicts. Arguably, it would be much better for states, however, to direct their human resources toward peace, stability and prosperity in due time, meaning, before the outbreak of violence. Inclusion of women as decision makers in peacebuilding processes provides better results: It is more likely that peace agreements will be achieved more quickly and sustained for longer when women are involved to a greater degree. Beside conflict resolution, disaster risk reduction is also another important domain for considering inclusive ways and means for reducing the vulnerability and risks of society, in order to avoid or counteract adverse effects and dangers caused by natural phenomena.

Key words: inclusive security, women's physical security, challenges, risks, experiences: France, Germany, disaster risk reduction

INTRODUCTION

No nation can enter the peacetime phase of development without accepting and supporting a stabilizing, creative and intellectual force of 50% of its population ... women. (Royce, 2018)[3]

The concept of inclusive security enables the discrimination-free inclusion of primarily women, and also members of various national and religious minority groups in the peace pro-

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2 Corresponding author.
3 Ed Royce - Californian Republican, Chair of the Committee on Foreign Affairs.

cesses and security sectors of the countries of their citizenship. Inclusive security contributes to transformation of and transformational powers of decision-making on war and peace. It is transformed by the very participation of women, and transformational because it further empowers women to participate. Inclusion is needed at several levels, from women's participation in the armed forces, through their adequate representation and participation in civilian representative bodies and other political decision-making places, to their engagement in all phases of the peacebuilding process and post-conflict reconciliation. The opposite situation is the exclusion of groups based on prejudices surrounding identity – regardless of whether the prejudices are gender-based, religious, ethnic or cultural. Experience has shown that such prejudicial situations contribute to war, poverty and various state failures (O'Reilly, 2018: 65). Women are traditionally the largest social group marginalized by political processes (Tamar, 2018). Today, even conservative politicians see the harmfulness of women's absence from certain socio-political spheres, and especially from peacemaking political processes. "The benefits of women's participation – and the risks of their exclusion – in all aspects of governance and peace building are too great to be ignored." [4]

Sustainable security and ways to achieve it are two of the most pressing and important challenges of any security concept (Mršević and Janković, 2017b: 249). Even starting to achieve lasting security is not possible without considering the various impacts that violent conflicts – and those who –wage them – have on women and girls. Similarly, the construction of tools needed to build lasting security and the eradication of gender-based insecurity requires a thorough review of the existing – still highly masculine – make-up of security structures, both in peacetime conditions and in post-conflict periods (Reinke, 2016).

GLOBAL SECURITY RISKS

In the past decade, the number of armed conflicts has risen sharply. In 2014, the world witnessed the most deaths since the Cold War as a result of conflict. Affected parties have been increasingly targeting civilians, and global displacement due to conflict, violence and persecution reached the highest ever recorded levels. Furthermore, when war erupts, the risk that a society will again go through violent conflicts in the future increases considerably. This is a highly worrying trend. Over the course of the 2000s, 90% of conflicts which broke out occurred in countries already affected by a previous war, and this rate of reoccurrence has increased every decade since 1960. An empirical analysis of eight decades of international crises shows that various peacekeeping efforts have often failed, while many were successful only in the short term, with the vast majority being unsuccessful in achieving lasting peace.

In contrast, there has been a continuous build-up of evidence in recent decades of the positive impact women have on socio-economic outcomes, which affect changes in the way governments, donors and aid organizations do their jobs. Despite this, women are thoroughly and consistently excluded from the area of peace and security. Although during the last two decades, there has been an increase in women's participation in decision-making relating to peace and security, these changes are still too slow. For example, women made up just 2% of mediators and 9% of negotiators in official peace negotiations between 1992 and 2011, and only 2% of the funds dedicated to peace and security are related to gender equality or the empowerment of women.

4 John Allen, President of the Brookings Institute, retired general.

INCLUSIVENESS AS A PREDICTOR OF PEACE AND SECURITY

Women are not only victims of war, but also powerful, essential actors in building lasting peace (Hunt, 2018). A statistical analysis of the largest set of data on the position of women in the world today shows that *women's physical security* better predicts the peace of a country than its level of democracy, GDP or the level of religiousness (Peters, 2016: 14). Physical security may be estimated in accordance with whether family law structures – such as those that regulate the minimum age for marriage, property rights of women and their inheritance rights, or divorce and custody rights – discriminate against women or not. It is also one of the indicators of a country's tendency toward conflict and the fragility of its peace (Peters, 2016: 55). Countries with more women in parliament are certainly less involved in interstate or civil wars, and are less likely to tolerate human rights violations within family units. "Empirical evidence is convincing: where women's inclusion is achieved, peace is more likely to be stabile and lasting – especially when women can and essentially influence decision-making" (Tamaru, 2018). It is also stated that "when women participate in peace processes, peace is more likely to endure. Measuring the presence of women as negotiators, mediators, witnesses, and signatories to 182 signed peace agreements between 1989 and 2011, this analysis shows that women's participation has its greatest impact in the long term: an agreement is 35 percent more likely to last at least 15 years if women participate in its creation" (O'Reilly, 2018: 28).

Many studies show a direct link between the power of women's decision-making and peace and conflict, as well as the likelihood of an outbreak of war. For example, results of one analysis have shown that a higher level of women's participation in parliament reduces the risk of civil war. A second analysis, using data on international crises over four decades, found that, as the percentage of women in parliament increases by just by 5%, it becomes five times less likely that the state will use violence when facing an international crisis. In terms of political violence committed by the state, statistical analysis of data from most countries of the world in the period between 1977 and 1996 shows that the greater the percentage of women in parliament, the lower the probability that the state would violate human rights by means such as political imprisonment, torture, killings and disappearances.

But just as empowerment of women is associated with a reduced likelihood of violent outbreaks, statistical analysis also shows that the strengthening of political and social participation of women also reduces the possibility of renewed conflict after the cessation of a war. In particular, increasing parliamentary representation and women's literacy reduce the risk that the country will again experience a civil war. A study of 58 countries affected by conflict between 1980 and 2003 found that when no woman is represented in parliament, the risk of recurrence increases over time, but "when 35% of the parliament is female, this relationship practically disappears and the risk of relapse is close to zero" (O'Reilly, 2015: 57).

Contemporary analyses show that in societies where women are engaged in many public spheres of life, it is less likely that countries will go to war with their neighbours, be considered 'persona non grata' within the international community, or that significant crime and violence zones exist within their society. The very mechanism of this causation is not yet fully clear, but it is obvious that *gender equality* is a better indicator of a state's peacefulness than other factors, such as democracy, religion or GDP. Similarly, gender inequality has been identified as a predictor of an armed conflict in a number of empirical studies, either by measuring conflicts between states or within states. In particular, fourteen out of seventeen countries at the bottom of the OECD Gender Discrimination Index have had a conflict over the last two decades. Syria, for example, has the third most discriminating institutions among the 108 surveyed countries – women face the legal and social limitations of their freedom of movement, only

men can act as legal guardians of their children in most communities, and judges can approve marriage for girls younger than 13 years old.

INCLUSIVENESS AS A GLOBAL TREND

The global inclusiveness trend is moving toward a growing demand for democratic participation, globally fact which has been evident worldwide since the beginning of the third wave of democratization during the 1990s. The representation of women in politics and in the field of legislation has increased, and there is a growing international standardization of wider participation and inclusion (Tamaru, 2018). The implementation of UN Security Council Resolution 1325, interpreted earlier as encouraging the adaptation of women to the current concept of peace and security, is increasingly understood and applied as a redefinition of peace and security from a gender-based perspective (Geuskens, 2014).

Inclusiveness based on the very concept of armed forces in certain states can serve as an example of inclusiveness. The French and German experiences are examples of inclusiveness that offer strong arguments for rationality and utility of inclusiveness. The French population is incredibly diverse: it is the state with the largest Muslim, Buddhist, Jewish, and other, communities in Europe, which is a large part of what makes the nation so diverse. This is further compounded by the pre-existing specificity of French military philosophy. Namely, in France, the army was organized from the Third Republic (*La Troisième République*, of 1871 to 1914) as a means of societal integration in order to reduce, and as a force to eliminate, internal security risks. This means that from the end of the 19th century, the goal of the military was to transform individuals of different identities, e.g. Breton, Basque, Corsican, and people from different regions, into primarily French citizens, developing a sense of patriotism and affiliation with the use of French. So, the French army has long functioned as a means of unifying the population as a whole (Berg et al., 2017).

It has long been accepted in Germany that no group should be deprived of the right (often emphasized as a privilege) to serve their country with weapons in their hands. The rhetorically asked question, is whether there is a sincere wish that Muslims, black people, women, gay and transgender people wear the colours of the country and the flag of its victories, Domink Wullers, the Spokesman for Germany's Federal Office for Bundeswehr Equipment answered with easy and clear, pragmatic answer of three "yeses": Yes, because it allows many who want to avoid the call to serve to do just that. Yes, because recruitment goals cannot be met without minorities and women. And, most importantly, yes, since many studies have shown that groups of different composition are more effective. In addition to pragmatism, having the opportunity to serve one's own country is a privilege, as it shows the readiness to invest one's own time and effort for your country and its values. This contributes to the fact that representatives of minority communities feel strongly connected with their country and its values by defending it, even giving their lives for it. Withdrawing this privilege from one particular group, not for militaristic but for ideological reasons, says more about exclusion than the excluded. Because if someone is qualified to protect his/her country, and some would prefer to refuse the protection that the excluded group would offer, it simply means accepting a deficient army. It is unacceptable to give consent for a greater danger to their country, its values, families and individuals, for the sake of preventing someone from the excluded community from taking arms and defending their country. In the end, this is not a question of the appreciation of black, female or transgender soldiers, but whether the ideological reasons for refusing

military service to certain groups are worthy of bringing the security of the country and the nation into question. The answer to this should be obvious (Mršević and Janković, 2017c: 81).

Very similar is the USA standpoint, expresed by Chevalier Cleaves, the Director of U.S. Air Force Diversity and Inclusion, who said that diversity and inclusion are critical because they are national security imperatives, and this has become more and more evident as U.S. Department of Defense doctrine and policy has integrated diversity and inclusion concept. Inclusiveness will make the security forces, especially the militaries, destinations of choice for the talent that wants to engage, which will simultaneously make all such inclusive countries safer places (Berg et al., 2017).

INCLUSIVENESS OF PEACE PROCESSES

Like men, women are assigned various roles during a conflict, from peacekeepers to political advocates of victims and perpetrators. Regardless of this, the average woman's experience of a conflict is different to that of a man. Men make up the majority of combatants and are more likely to be killed in combat. Women are less likely to take up arms, but they lose their lives in greater numbers through the indirect consequences of wars: the breakdown of social order, human rights violations, various forms of crime and gender-based violence, the spread of infectious diseases and economic devastation. Perhaps because of these unique experiences during (and immediately following) war, women emphasize different priorities during peace negotiations. They often expand the issues that are being considered, leading discussions away from military action, power, and territory, in order to consider the social and humanitarian needs that the parties to conflicts do not prioritize. Moreover, women are key actors in the "soft power" model. Women are still underutilized resources for successfully facing the challenges of establishing peace after violent conflict (Hunt, 2018).

Since the end of the Cold War, there has been a slow increase of number of women involved in negotiating processes. Women still have to overcome visible and invisible forms of discrimination, often wondering who exactly they represent when they are at the negotiating table. They have diverse, cross-referenced identities and differently located support centres, as well as different roles, e.g. technical experts, representatives of civil society, community leaders and voters. The sense of lack of legitimacy goes beyond this, through early actions and alliance building, which have proven to be useful strategies for overcoming such obstacles. An inclusive approach can be of vital importance in allowing conflicting parties to discuss and negotiate the conditions of the new national order and peaceful resolution of important differences, especially in previously deeply divided societies and those that have become such as a result of conflict (Tamaru, 2018).

The capacity to potentially end a conflict depends, in part, on who will participate in such a process. Due to the growing evidence that exclusion and inequality between groups is a significant driver of conflict and unrest, there is also a growing recognition that good governance depends on strong social alliances between citizens and the state. In addition, it has become increasingly evident that there is a greater likelihood that peacekeepers will succeed if women and other traditionally marginalized groups are involved (Tamaru, 2018).

It seems convincing that a safer world is possible if policymakers and conflict-affected populations work together. Significant participation of women can be the difference between failure and success. There are several reasons why this is so: women promote dialogue and build trust. They consistently bridge divisions and create peace-building coalitions. They bring different perspectives on what peace and security means and how it can be realized, contributing to a comprehensive understanding of peace that both meets long-term needs

and short-term security (O'Reilly, 2015: 55). When women influence decisions on war and peace and take the lead against extremism in their communities, it is more likely that crises will be resolved without resorting to violence. The participation of women as a result of the concept of security inclusiveness is not only the predecessor but also the determinant of peace (Vogelstein, 2018).

Mediation is a more effective means of dispelling conflict when compared to military victories. However, it still has mixed success: the empirical analysis of eight decades of international crises shows that although mediation often results in short-term interruptions to hostilities, it rarely leads to long-term peace. The results of qualitative and quantitative research show that women can change this picture. A study of 40 peace processes in 35 countries over the past three decades has shown that when women's groups were able to effectively influence the peace process, an agreement was almost always reached – with only one instance being an exception to this. When women did not participate, the rate of agreement was significantly lower. Once an agreement has been reached, the impact of women's groups is also associated with much higher implementation rates. The key ways in which women improve both the process and results of peace negotiations are that women are much more ready and capable for dialogue, trust building, bridging all kind of political and societal borders and building and mobilizing influential female coalitions. Parties to conflicts often consider women as being more respectful mediators in peace processes, and thus they act in accordance with this respect. Parties to conflicts generally perceive women as a lesser threat, as they usually act outside the formal structures of government and are not assumed to have an ability to mobilize combat forces. This allows women better access to conflicting parties than their male counterparts.

Research across cultures has shown that, in principle, women are less likely to be rejected or treated with mistrust because of their race, religion or ethnicity than men, making them well-positioned to move between and across conflicting groups during a conflict. Empirical studies show that both men and women are less afraid of women coming from rival social groups than men from these social groups, so it is more likely that conflicting parties will be more inclined to trust women to act as intermediaries. The fact that it is more likely that men will act as competitors and aggressors in interpersonal and intergroup relationships can also help explain why women tend to be seen as – and act as – peacemakers rather than opponents or competitors for power (O'Reilly, 2015: 29-30).

In addition to their role in mediation processes, women are skilled in building influential coalitions in their peace efforts. They often mobilize different groups within a society, working on different ethnic, religious, political and cultural divisions through open conflict, ensuring that participants represent a cross-section of religious, indigenous, youth and other groups. Negotiators from opposing sides are able to unite in their efforts to convince the public of the value of conflict-related negotiations. It is interesting that detailed studies on forty peace processes show that no women's group has ever tried to disrupt the peace process. Women in civil society, many of whom have decades of peace-building experience to their name, have worked with female officials and have constantly pushed the elite to continue their quest for peace. When the parties to a conflict have threatened to interrupt negotiations with violence, e.g. in 2012 in Sri Lanka[5], women held a peaceful protest, pushing those who hampered the peace process to return to the table (O'Reilly, 2015: 29).

One aspect that contributes to the success of women's peacemaking activities is a much higher likelihood of the dismissal the group hierarchical structures by women, than by men. In an analysis of research involving more than 50,000 respondents in 22 countries on 5 continents,

5 In Sri Lanka Buddhist monks and civil society organizations have mobilized to protest against peace talks.

social psychologists discovered that this is true across all cultures, without exception. This gender dynamic is particularly important for peacebuilding initiatives, since many wars have been initiated by oppressed groups against the dominant, and vice versa (O'Reilly, 2015: 44).

INCLUSIVENESS OF WOMEN WIDES INCLUSIVE

Wherever and whenever women are involved, they often advocate for other excluded groups, e.g. members come from under-represented gender, racial and ethnic groups, LGBTI communities, and persons with disabilities (Vogelstein, 2018).They also place on the agenda and discuss issues related to development and human rights that are related to the underlying causes of a conflict. Both of these aspects help societies reconcile and ultimately establish stronger peace. Women do not only explain how peace, unity, and reconciliation could not be achieved without women's inclusion, but also highlight how housing shortages, limited food production, needs of orphans, and the financial and social challenges facing female-headed households threatened the fragile peace and stability the state had recently accomplished (Tamaru, 2016). Also, when women participate in peace processes, they often raise issues of gender equality and women's rights, which also contribute to the creation of lasting peace. This not only strengthens the representativeness and legitimacy of the new political order that follows, but also the strengthening of the concept of inclusiveness, which in turn increases the proportion of women's participation, as well as the participation of other politically marginalized groups.

Even when women's problems are ultimately not included in peace agreements or new constitutions, female mobilization in contexts where gender roles and political power are in constant change seem to have produced positive results for the political institutions that followed. Studies show that across Africa, South Asia and Southeast Asia, there has been a dramatic increase in the numbers of women in parliament in post-conflict countries when compared to those without conflict. In Africa, women in post-conflict countries almost doubled their parliamentary representation rates – reaching 27% of parliamentary members in post-conflict environments, compared to 13% in parliamentary constituencies where conflict has not recently occurred, according to a 2012 study (Peters, 2016: 55).

When a war officially ends, political and social participation of women can contribute to a stronger peace for everyone, reducing the likelihood of re-entry into conflict and the undertaking of a more inclusive approach to post-conflict reconstruction. But not all doors are opened immediately: The results of the survey reveal that the 75 countries affected by conflict undertook significant reform processes between 1995 and 2015, but only one in five participants in the drafting of constitutional texts in these environments was a woman. When women open up the possibility of participation in formulating the constitution, this leads to more just legal frameworks and socially involved reforms, laying the foundations for sustainable peace. Inclusive security is thus shown to be the right solution for achieving lasting security (Holt-Ivry, 2018).

INCLUSIVE SECURITY AND REDUCTION OF RISK OF CATASTROPHE

Inclusive security is the concept of diversified inclusion of different social segments in the security sector. A gender-sensitive approach in the area of disaster risk reduction is based on the understanding that women and men are part of a society in which gender equality is not

achieved in practice. The possibilities that are actually available to them are not the same; both in "normal" circumstances and when a natural disaster occurs. In fact, gender equality is actually lower in emergency situations. All persons can be equally exposed to the risk of natural disasters, but the gender division of labour, unequal access to resources, and considerably less involvement of women in planning and decision-making have significant consequences in terms of increasing female vulnerability.

Public policies, instruments, mechanisms and tools used to respond to catastrophes and climate change must not be neutral in relation to gender, and should not be formulated and applied without considering specific gender differences. The consequences of the incorrect assumption that the risk of disasters is gender neutral include an incorrect identification and risk assessment, neglect or reduction of the risk of gender-based violence, and inadequately conceived policy responses, prioritization and risk financing at the national community level. The starting point in reducing disaster risk and promoting a culture of disaster relief and resiliency lies in the knowledge of the dangers of physical, social, economic and environmental disaster vulnerabilities that most societies face. It should always be borne in mind that disasters do not discriminate, but people do so when adhering to traditional gender prejudices and stereotypes, which discriminate against women and do not take the necessary measures to anticipate and prevent gender-based violence.

For all of these reasons, laws, policies and practices should take into account the fact that, due to the different economic, social, reproductive and political roles of men and women, they also have different capacities and needs in responding to the effects of disasters and climate change. It is evident from previous practice that, in taking on multiple roles in the name of their communities, women are strengthened not only to develop the capacities of the community to cope with catastrophes, but also to build an active, inclusive civic society that deals with development priorities that are inseparably linked to the reduction of gender-based vulnerabilities. In doing so, resilience to disasters, community development and empowerment of women are elements of unique, but not separate, efforts (United Nations Office for Disasters Reduction, 2011).

Transformative resistance (Le Masson et al., 2016) of a disaster-hit society is the capacity of resistance resulting from transformations – changes in the traditional structure of society – which are more likely to occur than maintaining and repeating the conditions that have led to its vulnerability to disaster risks. The goal of resistance is to improve the existing status rather than maintaining the *status quo*.

Emergency, extraordinary situations are also an opportunity to change the role and status of women within their communities, especially during the period of reconstruction and reconciliation. As with seismically unsafe facilities no longer being able to be built on earthquake-prone ground following an earthquake, with seismically resistant objects occupying the space instead, with the aim of not being affected by the damage again, so it needs to be with gender relations after disasters: they need to be changed in order to achieve greater gender equality, as a prerequisite for greater community resilience (Mršević and Janković, 2018: 405). The continued growth of disaster risk, including increased exposure of people and property, combined with lessons learned from previous disasters, points to a need to further strengthen preparedness for disasters in response to them. But it is also necessary to take action in anticipating events, integrating disaster risk reduction in preparing responses, and ensuring that there are capacities for effective response and recovery at all levels. It is necessary to empower women, people with disabilities and other marginalized groups to conduct public affairs, and, to this end, promotion of gender equality and universally available response, recovery, rehabilitation, and reconstruction are crucial.

CONCLUSION

Social relations are in constant change, with the development and achievement of transformational resistance being one of the qualities recommended today, an aspect that is not only desirable but also necessary (Mršević and Janković, 2017a: 163). It is possible that today's narrative with arguments will be unnecessary in a decade or so, as social awareness will reach the level of understanding necessary for the inclusiveness of security organizational models. But at present, inclusiveness is still a missing model of an ideally organized society of high resistance to security risks of all kinds, even those that are barely predictable, such as natural disasters. It is therefore necessary to persistently develop and integrate social inclusiveness at the present moment in order to achieve resistance to future risk scenarios. In particular, it is necessary to take the opportunity to initiate social changes in emergencies and to build in an inclusiveness that will be much more than a situational response to current events. The presence of inclusiveness across all phases; before, during, and after emergencies, is precisely a manifestation of transformed societal resistance of the highest possible level.

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CLIMATE CHANGE IN THE REPUBLIC OF SERBIA, PARIS AGREEMENT AND CHAPTER 27

Vladimir V. Veković,[1] **PhD**
University of Priština, Kosovska Mitrovica, Faculty of Law

Violeta V. Ćulafić,[2] **MA**
Ministry of Environmental Protection of the Republic of Serbia

Abstract: As a party of the United Nations Framework Convention on Climate Change (Convention/ UNFCCC), and the Kyoto Protocol, the Republic of Serbia contributes to the global fight against climate change in accordance with its capacities, national circumstances and defined development goals. In the Second National Communication of the Republic of Serbia under the UNFCCC (Communication), from 2017, our country provided alarming data on the observed and expected climate change (climate scenarios) and their negative impact in the areas of hydrology and water resources, forestry, agriculture and human health. The Communication also lists the measures and activities that the Republic of Serbia intends or, according to the established dynamics, intends to implement in order to adapt vulnerable sectors and systems through the construction of adaptive capacities, strengthening resilience and reducing vulnerability to climate change.

The Paris Agreement (Agreement) from 2015 is a new legally binding document defining the obligations of the parties to the Convention, also including the Republic of Serbia, for the period after 2020. As an important qualitative step in relation to the Kyoto Protocol, the Agreement aims to provide a more effective global response to threats caused by climate change. More precisely, its application should result in the stabilization of atmospheric concentrations of greenhouse effect gases at a level that will prevent further adverse effects on sectors and systems. The obligations of the parties to the Convention are primarily based on Intended National Determined Contributions (INDC), which, in line with the increased level of ambition, can be revised at any time.

The authors point out that the obligations of the Republic of Serbia under the Convention and Agreement, and the obligations related to the European Union accession negotiations process (the opening of Chapter 27 dedicated to the environment and climate change is yet to follow) do not mutually exclude each other; on the contrary, they are closely related and complementary.

Key words: climate change, Republic of Serbia, UNFCCC, Paris Agreement, European Union, Chapter 27.

1 vladimir.vekovic@pr.ac.rs
2 violeta.culafic@ekologija.gov.rs

CLIMATE CHANGE – A GLOBAL PROBLEM AND A COMMON CONCERN OF HUMANITY

Climate change causes global warming resulting from the release of carbon dioxide (CO2) from artificial sources in quantities that exceed by 100 to 200 times carbon dioxide from natural sources. Due to the concentration of carbon dioxide and toxic gases, the Earth is not able to absorb short-range solar radiation that is usually returned to the cosmos, but infrared rays remain under a layer of gases and our planet absorbs them. Thus, the effect of greenhouse gases (hereinafter: GHG) occurs, i.e. increasing temperature on Earth, which can have devastating effects on life and civilization. According to forecasts of the Intergovernmental Panel on Climate Change (IPCC) held in 2001, the temperature on Earth could rise by 1.4 to 5.8°C by 2100 and cause the melting of glaciers and arctic polar overgrowth, storms, destabilization and disappearance of animal habitats, salinization of drinking water, mass destruction of forests and catastrophic droughts (Kreća, 2012, p. 707). Climate change is also a threat to the survival of small island states, states with low coastal zones, arid and semi-arid areas, areas where forests are at risk of decay, areas vulnerable to drought and desertification, etc.

The General Assembly of the United Nations (UN) through a series of resolutions3 pointed to the alarming consequences of climate change, qualifying the issue of climate as a common concern for humanity. Particular importance is attached to the UN Framework Convention on Climate Change (Convention/UNFCCC),4 which was adopted at the 1992 UN Development and Environment Conference in Rio de Janeiro. Under "adverse impacts of climate change", the Convention implies changes in the physical environment or "biota", which have significant adverse effects on the composition, ability to regenerate or productivity of natural and controlled ecosystems or the functioning of socio-economic systems or human health and well-being. The change of climate that the Convention has in mind is directly or indirectly conditioned by human activities.

The ultimate goal of the Convention and its related legal instruments is to achieve a stabilization of the concentration of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic impacts on the climate system. Such a level should be achieved over a period of time that would allow ecosystems to adapt naturally to climate change, ensure that food production and the pursuit of further stable economic development are not compromised.

The obligations of all parties to the Convention, inter alia, include: the development and publication of national cadastres of anthropogenic sources and emissions of all greenhouse gases not regulated by the Montreal Protocol; formulating, realizing and regularly updating national and, in appropriate cases, regional programs to mitigate climate change and to facilitate adaptation to these changes; cooperation on the development of methods and processes that limit, reduce or prevent anthropogenic greenhouse gas emissions in all relevant sectors, including energy, transport, industry, agriculture, forestry and waste disposal, as well as the implementation of relevant social, economic and environmental policies and actions mitigation or adaptation to climate change in order to minimize adverse impacts on the economy, population health and environmental quality.

Given that most of the global emissions of greenhouse gases originate from developed countries; these are, in accordance with the principle of common but differentiated respon-

3 Resolutions 43/53 of 6 December 1988, 44/206, 44/207 and 44/228 of 22 December 1989, 45/212 of 21 December 1990 and 46/169 of 19 December 1991.

4 United Nations Framework Convention on Climate Change adopted on 9 May 1992 and opened for signature at the Earth Summit in Rio de Janeiro from 3 to 14 June 1992; entered into force on 21 March 1994.

sibility, the obligations of the parties asymmetrically placed, so that the developed countries, in addition to the already stated general obligations shared by all parties, have special obligations. The specific obligations of the developed countries listed in Annex I to the Convention include: implementing national policies and undertaking appropriate measures to mitigate climate change by limiting anthropogenic emissions of greenhouse gases and protecting and increasing absorbers and fuel gases; delivering (within six months of the entry into force of the Convention and then periodically) detailed information on its policy and measures to reduce emissions of carbon dioxide and other greenhouse gases not regulated by the Montreal Protocol at the 1990 level, as well as identifying and periodically reviewing their own policies and measures to encourage activities that lead to higher levels of anthropogenic greenhouse gas emissions compared to the levels that would otherwise exist. In addition, the developed countries listed in Annex II will provide new and additional sources of funding to cover all costs of developing country parties. This financial support strengthens the ability of developing countries to deal with climate change issues and, ultimately, enable them to implement the provisions of the Convention.

The highest body of the Convention is the Conference of the Parties in charge of regularly reviewing the implementation of the Convention and related legal instruments, as well as making decisions necessary to improve the effectiveness of the implementation of the Convention. In addition to the Secretariat, the Conference is assisted by the Subsidiary body for scientific and technological advice and Subsidiary body for implementation.

The method of achieving the ultimate goal of the Convention was established by the Kyoto Protocol to the UN Framework Convention on Climate Change of 1997. They have quantified obligations to reduce greenhouse gas emissions for 38 industrialized countries, an average of 5.00% compared to the reference year 1990, in the first bidding period from 2008 to 2012. In developing countries, in terms of the provisions of the Convention, the Kyoto Protocol has not introduced quantified obligations to reduce GHG emissions. Considering that this protocol defined the commitments to reduce GHG emissions for the period until the end of 2012, and that it is necessary to continuously continue activities to reduce these emissions, the adoption of a new legally binding international agreement that will set commitments for the period after 2012, is imposed as an imperative. After a long and intense negotiation process on the obligations of the parties to the Convention and the Kyoto Protocol for the post-2012 period, at the Doha Conference in 2012, a package of 39 decisions titled "Doha Climate Gateway" was adopted.[5] Among other things, this package also included Decision 1/CMP8 on the Kyoto Protocol Amendment, adopted on December 8, 2012 – Doha Amendment to the Kyoto Protocol to the UN Framework Convention on Climate Change (Doha Amendment). The main goal of the Doha Amendment is to confirm the second binding period of the Kyoto Protocol for an eight-year period, from January 1, 2013 to December 31, 2020. In this way, it is possible to continue the fight against climate change on an international and global scale. For countries listed in Annex I of the Kyoto Protocol, Doha Amendment contains new obligations to reduce GHG emissions in the second bind period, while for developing countries quantified greenhouse gas emission reduction targets have not been introduced.

From November 30 to December 11, 2015, the UN Conference on Climate Change was held under the auspices of the UNFCCC in Paris. The Paris Conference was held with the aim

5 Negotiations on commitments for the period after 2012 began at the 2007 Bali Conference, continued in Poznan (2008), Copenhagen (2009), Cancun (2010), Durban (2011), to be completed only in 2012 Doha Conference. The exceptional complexity of the negotiated issues, as well as the hesitation of the developed countries, as a rule of the largest polluters, to be bound by such an agreement, have prolonged the negotiation process. Their unwillingness to take responsibility for their actions seriously undermines the declarative commitment to protecting the climate system for the benefit of present and future generations.

of reaching an agreement and adopting a new legally binding document that would define the obligations of the Parties to the Convention after the expiration of the second binding period of the Kyoto Protocol on December 31, 2020, thus preventing a global temperature rise above 2°C in accordance with requirements of science. The conference ended with the adoption of the Paris Agreement (Agreement) and a set of accompanying decisions. The agreement has been adopted by 195 parties to the Convention, and it is envisaged to enter into force when at least 55 parties responsible for at least 55.00% of the total global greenhouse gas emissions deposit their instruments of ratification, acceptance, approval or accession.

The Agreement defined commitments for the period after 31 December 2020, primarily based on the so-called Intended National Determined Contribution (INDC) submitted by the Parties to the Convention. They are obliged to carry out GHG emission reduction activities that will ensure the limitation of the global average temperature rise considerably below 2°C, with the tendency of increasing the emission reduction ambition, which will lead to a limitation of the global average temperature rise to 1.5°C. Increasing the ambition of reduction of GHG emissions will be realized through the revision of the submitted objectives (the next objective will always be progress in relation to the current one) every five years, and in accordance with the capabilities of the contracting party. The Agreement reflects the principle of equality and shared, but differentiated responsibilities as well as different national circumstances.

Among other things, the Agreement emphasizes the importance of the Warsaw International Mechanism for Preventing, Minimizing and Coping with losses and damages caused by climate change, including extreme weather and events that take place over a longer period of time; defines possible forms of cooperation and assistance in this area and affirms the obligation of developed countries to provide financial assistance to developing countries to undertake mitigation and adjustment measures as a continuation of their existing obligations under the Convention.

CLIMATE CHANGE IN THE REPUBLIC OF SERBIA, THE UNITED NATIONS AND THE EUROPEAN UNION

By adopting the Paris Agreement in 2015 and its entry into force in 2016, the parties to the Convention has confirmed the commitment to economic growth followed by a reduction in greenhouse gas emissions. Establishing a system for reducing GHG and adapting to the changed climatic conditions at the level of each party to the Convention and the Agreement is conditio sine qua non of sustainable economic development and reduction of risks, damages and losses from natural and other disasters. The achievement of this goal is inextricably linked to the fulfillment of obligations under the Convention and the Agreement. At the same time as fulfilling these obligations, the Republic of Serbia also expects the harmonization of the national legislation in this field with the acquis communautaire (EU), whose membership we are seeking.[6] The opening of Chapter 27, dedicated to the environment and climate change,[7] is what follows.

6 The Republic of Serbia, with its status of a developing country, has been a party to the UNFCCC since June 10, 2010, the Paris Agreement of August 24, 2017, while negotiations on EU accession started on January 21, 2014.

7 The fight against climate change has been introduced as a specific objective of the EU reform of the Treaties in Lisbon in 2009, i.e. the Treaty on the Functioning of the EU (Lisbon Treaty), replacing the Treaty establishing the European Community (Treaty of Maastricht).

SECOND NATIONAL COMMUNICATION OF THE REPUBLIC OF SERBIA UNDER THE UNITED NATION FRAMEWORK CONVENTION ON CLIMATE CHANGE

In the Second National Communication of the Republic of Serbia under the UNFCCC (Communication), from August 2017 (Ministry of Environmental Protection [MEP], 2017), our country has presented a series of alarming data on the observed and expected climate change (climate scenarios) and their negative impact in the areas:

1) hydrology and water resources – in the Republic of Serbia, 99 significant floodplains located in the coastal areas of the Danube, Tisa, Sava, Drina, Velika Morava, Južna Morava and Zapadna Morava rivers have been identified. During the floods of May 2014, about 1.6 million people were endangered, and damages and losses were estimated at more than 1.5 billion €. Taking into account the expected changes in the climate in the future, with moderate to high reliability, further intensification of erosion processes, torrents and floods on small rivers can be expected, as well as the increase in floods on rivers of medium size, while the increase in floods on large rivers and large areas in the immediate the future can be expected with little reliability (ibidem, pp. 85-90);

2) forestry – in the period 2003-2012, forest fire damage occurred on the surface of 36,095 ha, which makes up about 1.60% of forests in our country. In over 80.00% of cases, forest fires occurred during March, April, July and August. The predicted increase in temperature, as well as more frequent and longer dry periods, will contribute to faster spread and increase of forest surfaces that will be affected by fire styles. The negative impact of climate change is mostly related to oak larvae – Quercus robur L. (its vulnerability stems from the fact that it is also dependent on underground waters, experiencing a general decline in the last few decades) and beech – Fagus sylvatica L. (by the end of the 21st century, about 50.00% of beech forests will be found in a zone where mass mortality is expected). The most prevalent negative factor in forest ecosystems during the observed period included pests and diseases. The largest damage was caused by the gypsy moth (Lymantria dispar), which was detected in 175,000 ha in 2013, while the area was doubled next year (more than 340,000 ha). Attack of the gypsy moth in the future will result in significant economic losses in this sector and reduce the number and quantity of ecosystem services provided by the forests (ibidem, pp. 90-95);

3) agriculture – expected decrease in corn yield for the period 2071-2100; it ranges from -52.00% to -22.00% for the whole territory of the Republic of Serbia. With adequate irrigation, the loss of corn yield by the mid-21st century can be reduced to 32.00%. Erosion (water and eolic) affects approximately 80.00% of agricultural land. In the long run, the effects of extreme weather can reduce the fertility of the soil and significantly impair its functions (ibidem, pp. 95-101); and

4) human health – the impact of climate change (primarily, thermal waves, poor air quality and carbon dioxide levels, extreme precipitation and floods, fires, droughts and an increase in average temperature) is manifested through the increasing frequency of vector transmissible infectious diseases (Lyme disease – Lyme borreliosis, malaria – Malaria tropica and West Nile virus – Encephalitis Nili occidentalis), the spread of infectious diseases transmitted through water (cholera – Cholera and diarrhea – Diarrhea) and an increase in mortality of the vulnerable part of the population (cardiovascular patients, those suffering from respiratory diseases, diabetics, poor people, old people, children, etc.) (ibidem, pp. 101-103).

Also, the Communication outlines the measures and activities that the Republic of Serbia undertakes or, according to the established dynamics, intends to undertake in order to adapt vulnerable sectors and systems through the construction of adaptive capacities, strengthening

resilience and reducing vulnerability to climate change. Following their contribution to the achievement of the objectives of the Convention, the following activities are identified:

1) in June 2015, the Government of the Republic of Serbia submitted to the UNFCCC an Intended National Determined Contributions, anticipating a reduction of GHG emissions by 9.80% by 2030 in relation to emissions from 1990 (ibidem, p. 107);

2) the Department of Climate Change was formed in 2008 in the Ministry of Environmental Protection in order to provide the necessary institutional structure for meeting the obligations to the UNFCCC, but also in the process of EU accession. The same year, a Subregional Virtual Center for Climate Change for Southeastern Europe was established within the Republic Hydrometeorological Service of Serbia, as well as the National Body for the Implementation of Clean Development Mechanisms of Serbia, composed of representatives of the ministries responsible for energy, transport, construction, agriculture, waste management, forestry and water. Finally, in order to more effectively exchange information in the field of climate change between the relevant institutions of the executive, scientific and professional public and local communities, as well as the popularization of this problem at the national level, the Government in 2014 established the National Council for Climate Change (ibidem, pp. 107-108);

3) significant efforts have been made to improve the legislative framework and policies that affect the implementation of activities related to climate change. In accordance with the country's strategic goals, the process of harmonization of the national legislation with the EU legislation has begun, which significantly contributes to the fulfillment of obligations under the Convention. The National Sustainable Development Strategy of the Republic of Serbia (2008) and its Action Plan for 2009-2017, National Program for Environmental Protection 2010-2019. (2010), the National Strategy for Incorporation of the Republic of Serbia into Clean Development Mechanism under the Kyoto Protocol for Waste Management, Agriculture and Forestry sector (2010), the Forestry Development Strategy (2006), Waste Management Strategy 2010-2019. (2010), Biodiversity Strategy of the Republic of Serbia for 2011-2018. (2011), National Strategy for Disaster Risk Reduction and Protection and Rescue in Emergency Situations (2011), National Strategy of Sustainable Usage of Natural Goods and Resources (2012), Energy Development Strategy 2025 (2015), First National Energy Efficiency Action Plan (2010), National Renewable Energy Action Plan of the Republic of Serbia (2013), National Rural Development Strategy (2015) and other documents recognize the problem of climate change and indicate the activities that contribute to its resolution. In addition, with the expert and financial assistance of the EU in July 2016, the preparation of the National Climate Change Strategy with Action Plan was initiated. The aim of the strategy is to define a long-term framework for the fight against climate change and concrete activities for its achievement, for the period 2020-2050. every five years, as well as the estimate of emission reductions by 2070. This will also enable the fulfillment of the requirements of the Agreement (ibidem, pp. 108-110);

4) a number of extremely important research and systematic observations of climate change have been realized, primarily thanks to the participation of scientific, state and other institutions and individuals in the scientific-technical programs of the World Meteorological Organization, EU development programs, as well as programs financed and realized on the principle of bilateral and multilateral cooperation (ibidem, pp. 110-111);

5) the Strategy for the Development of Education in the Republic of Serbia by 2020 recognized the importance of protecting the environment, climate change and trends in the development of new technologies necessary for sustainable development, so that the environmental content that directly or indirectly deals with climate change has become an integral part of curricula and textbooks for elementary and secondary school students, as well as

university students. The Ministry of Environmental Protection identified the need to improve the knowledge of stakeholders as one of the key issues in the field of climate change, and organized a large number of workshops, seminars and conferences for state administration, local authorities, the media, the business sector, investors, etc. Events aimed at raising public awareness of this issue have been given significant attention by both the Ministry of Construction, Transport and Infrastructure, the Ministry of the Interior (Sector for Emergency Situations), Water Directorate, Chamber of Commerce of Serbia, the European Integration Office, United Nations Development Program (UNDP), the UN Environment Program (UNEP), the Organization for Economic Co-operation and Development (OECD), the World Bank, the EU institutions and its members, the Japan International Cooperation Agency (JICA), etc. (ibidem, pp. 111-112);

6) over the past few years our country has continuously invested efforts to improve the cooperation with the UNFCCC parties and bodies. Considering the status of candidate for EU membership, cooperation with the European Commission and the institutions of EU member states has been significantly improved, which, due to the transfer of experience in the application of the EU legislation, has a special significance. As a result, the largest number of activities in this field are realized through projects and various forms of bilateral, regional and international cooperation. After the catastrophic floods that affected the region in 2014, the number of regional projects aimed at reducing the risk of catastrophe has increased significantly. The projects are carried out in cooperation with various international, regional organizations and implementation agencies, such as UNDP, UNEP, the UN Disaster Risk Reduction Organization (UNISDR), the World Bank, the World Meteorological Organization, the Organization for Security and Co-operation in Europe (OSCE) etc. From the perspective of regional cooperation, an EU-funded ECRAN project (Environment and Climate Regional Accession Network) is particularly important, aimed at strengthening the cooperation and capacities of candidate countries and potential candidates for membership (ibidem, p. 113); and

7) a process for the continuous monitoring, reporting and verification (MRV) of data and information relevant for combating climate change has been initiated through the UNFCCC Reporting Process. The MRV system in the part relating to GHG inventories has been operating since 2009, when the Law on Air Protection gave the authority for inventory to the Agency for Environmental Protection. The obligation to provide input data is provided by state and local authorities, public institutions, business entities and other legal entities related to the environmental protection area that collect and have the data necessary for the preparation of the greenhouse gas inventory. The key short-term challenges in the future development of the GHG inventory relate to institutional and human resources, the strengthening and management of information flows, including information infrastructure, given that existing capacities are insufficient. Otherwise, the start of the functioning of the complete MRV system, which includes MRV measures of reduction of GHG, is planned for 2019 (ibidem, pp. 113-114).

DRAFT LAW ON CLIMATE CHANGE

Legal gaps in the area of climate change have indicated the necessity of adopting legal solutions that will enable the reduction of GHG emissions. Accordingly, the Draft Law on Climate Change (Draft) was prepared for the public in 2018. The Draft was created as a result of work under two Twinning projects financed by the EU – "Establishing monitoring, reporting and verification systems necessary for the successful implementation of the EU-ETS" (2013-

2015) and "Establishing an enforcement mechanism the EU Regulation on the Monitoring Mechanism (MMR)" (2015-2017). For the needs of project implementation and the drafting of the bill, working groups were formed from representatives of government institutions, economy and non-governmental sector. In parallel with the work on the Draft and by-laws, activities on strengthening administrative and institutional capacities were also implemented.

The objectives of the Draft are to create a legal basis for the establishment of a monitoring and reporting system on GHG emissions to reduce their emissions and adapt to altered climatic conditions in accordance with the needs and capabilities of the Republic of Serbia, as well as obligations under the UNFCCC, the Kyoto Protocol, the Doha Amendment and the Paris Agreement. Achieving these objectives is at the same time a prerequisite for introducing a market-oriented instrument, i.e. the emission trading system as a key instrument of the EU in the fight against climate change, which allows the emission reduction to be achieved in a cost-effective and economically efficient way. Accordingly, the Draft transposes relevant EU directives, regulations and decisions in this field.

The Draft regulates the most important issues of climate change and contains eleven sections: Basic Provisions (Articles 1-5), Strategies and Plans (Articles 6-17), Policies and Measures for Limiting GHG Emissions from Sources (Articles 18-24), Monitoring, Reporting and Verification of GHG Emissions from Installations and Aviation Activities (Articles 25-56), Monitoring and Reporting System for National GHG Emissions (Articles 57-61), Projections of GHG Emissions from Sources and Removal by Sinks (Article 62- 63), GHG Policy Reporting System, Measures and Projections (Articles 64-66), Administrative Fees (Article 67), Supervision (Articles 68-70), Penal Provisions (Articles 71-75), and Interim and Final Provisions (Articles 76-86).

The Draft also includes regulated policies and measures that contribute to the reduction of GHG emissions and their removal, and whose implementation is possible through: Clean Development Mechanism of the Kyoto Protocol; raising awareness about the contribution of emissions from the road transport sector, exclusively related to new vehicles, and raising general awareness of the contribution of emissions from the industry, energy and aviation industry exclusively through monitoring, reporting and verification of GHG emissions from these sectors. Policy instruments and planning in the field of climate change are: Low-Carbon Strategy; Program for Adaptation to Changed Climatic Conditions, and Action Plan for Implementation of the Strategy.

In order to collect remarks, suggestions and comments that will further improve the quality of the existing Draft, a public hearing was held in Novi Sad, Kragujevac, Niš, Belgrade, Pirot and Prijepolje, organized by the Ministry of Environmental Protection from March 15 to April 20, 2018. By adopting the Law on Climate Change by the end of 2018, as well as the accompanying bylaws, harmonization of domestic regulations with the following EU legal regulations will be carried out: Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003; Commission Regulation (EU) No 600/2012 of 21 June 2012; Commission Regulation (EU) No 601/2012 of 21 June 2012; Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013; Commission Delegated Regulation (EU) No 666/2014 of 12 March 2014; Commission Implementing Regulation (EU) No 749/2014 of 30 June 2014; Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2013 and Directive 1999/94/EC of the European Parliament and of the Council of 13 December 1999.

DISCUSSION AND CONCLUSIONS

As a party to the UNFCCC and Kyoto Protocol, the Republic of Serbia contributes to the global efforts against climate change in accordance with its capacities, national circumstances and established development goals. However, the status of a developing country implies a much "looser" set of obligations related to the reduction of greenhouse gas emissions compared to developed countries (listed in Annex I to the Convention), in particular to EU members. The Paris Agreement, to which our country is also a party, formally cancels the division into developed and developing countries, requiring all effective action to curb climate change. Also, the process of EU accession requires the Republic of Serbia to fully align itself with the EU's climate policy and take upon itself an appropriate share in climate action (Mladi istraživači Srbije, 2017, p. 39). Thus, the accession negotiations and the beginning of the implementation of the Paris Agreement (after December 31, 2020) imply much more responsibility and complex obligations in the field of climate change to our country, than it is the case today. These obligations are not mutually exclusive; on the contrary, they "go hand in hand", considering that they are closely related and complementary.

Although the accession negotiations have entered the fifth year, Chapter 27 – Environment and Climate Change, is still not open. This is a chapter that falls into one of the 35 negotiating areas in which the EU monitors our progress in meeting the third Copenhagen criteria (assuming obligations from membership). It has about one third of all EU acquisitions. Experience shows that the negotiation process in respect of Chapter 27 is the most demanding because of its enormity and significant backlog in terms of environmental standards in relation to the EU (National Environmental Approximation Strategy for the Republic of Serbia [NEAS], 2011).

The EU expects from our country some guarantees regarding the timeframe and the way in which transposition, implementation and effective enforcement of EU acquis in this area will be ensured. In other words, the assumption of obligations from membership implies the transposition of all EU rules, as well as the capacity for their implementation and enforcement. It is understood that full compliance in all three aspects must occur before membership. Obviously, this is an extremely comprehensive and complex task that the Republic of Serbia has to achieve in order to achieve full compliance with EU regulations. In this regard, the three key challenges in taking up the obligations under Chapter 27 are:

1) legislative challenge – although Serbian legislation has transposed the principles of EU policy under Article 191 of the Treaty on the Functioning of the EU and in a significant part of the demand from most sectors (e.g. horizontal legislation, waste sector, air sector, noise, chemicals, nature protection, etc.), there is a clear lack of certain "soft" knowledge and "political vision". Transposition of EU regulations was carried out without preliminary analysis of adequate institutional arrangements for their implementation and actual implementation, the planned way of financing and the examination of costs and profits. There is no critical impact assessment of the adopted regulations – e.g. whether they lead to improvement of the environmental performance of society, contribute to improving the quality of the environment, avoiding or reducing damage, etc. Positive effects of policies, and when they are present, are not present in the public, which contributes to the rise in skepticism regarding the authority of the regulations themselves. Inadequate positioning among policymakers resulted in the absence of a long-term strategic direction in this area that exceeds the mandate of a single government. Political risk negatively affects the reputation, legal certainty and effectiveness of legislative policy (ibidem);

2) institutional challenge – the implementation and effective implementation of legislation in this area, due to its specific nature, requires trained professionals of different profiles at

all relevant levels. Due to inadequate administrative, human and infrastructural capacities, it is necessary to establish new institutional resources, to strengthen the capabilities of existing ones, and to continuously improve the knowledge and practical experience of employees. In order to strengthen capacities, it is necessary to ensure the stability of institutions and constant, safe and dedicated policy financing through the application of the "polluter pays" principle and the full cost recovery of environmental services (waste management, water supply and waste water collection and treatment). Given that the Republic of Serbia has significantly decentralized the implementation of transposed EU acquis in this area by entrusting tasks within its competence to the Autonomous Province of Vojvodina and local self-government units, this division of competences must be clear, and the effective implementation of the objectives of the directive is ensured throughout the territory of the state (ibidem); and

3) economic challenge – communal and energy infrastructure in the Republic of Serbia drastically lags behind the level of ecological services and performance in the EU (near 90.00% of municipal and industrial wastewater in our country is released, without prior processing into the rivers; Belgrade, Novi Sad, Niš and other large cities do not have municipal wastewater treatment plants; the rate of recycling of solid municipal waste is only 4.00%, while in the EU more than 40.00%; the exposure of the population to sulfur dioxide emissions is 5.5 times per capita higher than in the EU, etc.). Bearing in mind the above, the total costs of the Republic of Serbia (capital, operational and administrative) in respect of Chapter 27 for the period 2011-2030 have been estimated at 10.6 billion €. Operating costs, which make up around 4.6 billion € will significantly participate in the structure of total costs, will not be financed from international sources (EU funds, donations or international financial institutions), but in accordance with the application of the "polluter pays" principle and the principle of full cost recovery, from private sources, fees for the use of services and the budget (ibidem).

By adequately responding to the above challenges, the Republic of Serbia will successfully fulfill its obligations under the UNFCCC and the Paris Agreement; contribute to a more successful long-term global response to threats caused by climate change. By taking effective action, our country will also accelerate the achievement of the EU's priority goals in this area – preserving, protecting and improving the quality of the environment; protection of human health; responsible and rational use of natural resources, as well as the promotion of measures on the international level which make the solving of regional and global environmental problems more effective, particularly in terms of combating climate change.

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SECURITY SCIENCES AT THE STATE UNIVERSITIES OF THE REPUBLIC OF SERBIA[1]

Saša Mijalković, PhD[2]
Marija Popović Mančević, MA
University of Criminal Investigation and Police Studies, Belgrade

Abstract: Security sciences are to a greater or lesser extent represented at several departments within state universities of the Republic of Serbia. The aim of this paper is to present the results of the analysis that tackles the topic of representation of security sciences' courses within the undergraduate, graduate and PhD studies programs of particular higher education institutions in the Republic of Serbia. These institutions were selected on the criteria of existence of modules or departments dedicated to security. The scope of the representation of security sciences within the framework of each study program at each of the higher education institution were determined by using the method of content analysis of official documents of higher education institutions and by statistical processing of data. Then, using comparative method, a comparative analysis of the representation of security sciences in the entire teaching curricula of higher education institutions was carried out for all level of studies (undergraduate vocational studies, undergraduate academic studies, master studies, specialist academic studies, doctoral studies). Based on this, conclusions on quantity (nominal representation) and quality (predominant commitment to the field of national or international security) of study programs were made.

Keywords:security, security sciences, security studies, teaching disciplines of security orientation, higher education, higher education institutions, the Republic of Serbia.

INTRODUCTION

The aim of this paper is to point out that security sciences are independent, unique and synthetic theoretical-empirical and teaching-scientific disciplines. The interpretations which define them as military, legal or political disciplines are unfounded, because their autonomy and scientificity are confirmed by their scientific constituents (See: Simić, 2002; Mijalkov-

1 This paper is the result of the two Scientific Research Projects entitled: 1. "Development of InstitutionalCapacities, Standards and Procedures for Fighting Organized Crime and Terrorism in Climate of International Integrations". The Project is financed by the Ministry of Science and Technological Development of the Republic of Serbia (No 179045), and carried out by the Academy of Criminalistics and Police Studies in Belgrade (2011–2018). The leader of the Project is Associate Professor Saša Mijalković, PhD; 2. "Development of master curricula for natural disasters risk management in Western Balkan countries". The Project is financed by the Erasmus+ Programme of the European Union (573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP)), and carried out by the International Consortium (2016–2019). The leader of the Project is Assistent Professor Milan Gocić, PhD
2sasa.mijalkovic@kpa.edu.rs

ić, Popović, 2013: 291–298, Mijalković, 2015; Mijalković, Popović, 2016; Stajić, 2015; Stajić, Lazić, 2015).

The evidence for this is numerous, first of all, higher education institutions wheresecurity is being studied. Some of them are specialized exclusively for security or certain sub-fields of security sciences.Security is also a highly developed field of scientific research within numerous scientific institutesand scientific projects. Although well known FRASCATI classification doesn't recognize security as one of the scientific fields (Revised Field of Science and Technology (FOS) Classification in the Frascati Manual, 2007; Proposed Standard Practice for Surveys on Research and Experimental Development, 2002), the European Union has recognized the field of security as a very important sphere of scientific research, by financing certain scientific programs, e.g. FP7 and Horizon 2020 (see: European Commission Research and Inovation, 2018, CORDIS, 2018). The hypothesis of this research is that the field of security sciences is an autonomous and integral corpus of several types and groups of scientific disciplines, characterized by an independent system of scientific knowledge.

The starting points in proving this hypothesis are numerous curricula and modules in Serbia, that are implemented within higher education institutions, and some educational profiles that are compatible with certain occupations in the security sector. The sources of data were the curricula, founding acts and official websites of certain higher education institutions in the Republic of Serbia. The indicators are security and partly security oriented courses, as well as the official identity of the higher education institution and the professional titles obtained by the completion of the studies.

Of course, it was not possible to analyze the curricula of all higher education institutions in the Republic of Serbia, butonly a representative sample, including programs of the Faculty of Security Studies, University of Belgrade; the Faculty of Law, University of Novi Sad;the Faculty of Law, University of Kragujevac; Faculty of Political Sciences, University of Belgrade and The Academy of Criminalistic and Police Studies. On the one hand, a number of higher education institutions from different universities in Serbia takes into account wider spatial distribution of the sample. On the other hand, within these institutions there are certain educational contents, and also the departments within which the security sciences are studied, which makes them suitable for comparison. In addition, these higher education institutions have set their standards and programs for studying the content of security orientation in higher education institutions in the non-state sector, which is the main reason why the plans and programs of private faculties and colleges have not been analyzed.

The research was conducted using the method of content analysis of official documents. First, the number of security orientation courses was determined, and then, using the statistical method, their percentage representation was calculated at the levels of individual study programs, or at the levels of the total teaching materials offered at concrete higher education institution. Finally, we compared the percentage representation of the courses of security orientation among the mentioned higher education institutions, according to the same level of studies, as well as at levels of the total teaching materials offered by these institutions.

ANALYSIS OF SECURITY SCIENCES'REPRESENTATION IN CURRICULA OF CERTAIN DEPARTMENTS WITHIN THE STATE UNIVERSITIES OF THE REPUBLIC OF SERBIA

It is important to note that this research is one of the few that analyzes the representation of security sciences in programs of higher education institutions in the Republic of Serbia.

Nevertheless, in one of the previous research, the compliance of the security-related study programs with the needs of practice in one specific field of security, protection of critical infrastructure, is analyzed. The results of a certain sample of the respondents showed that none of the existing study programs fully meets the needs of the employees in the field of critical infrastructure protection, but the key institutions that educate staff in this field has been identified: the Faculty of Security Studies University of Belgrade, Academy of Criminalistic and Police Studies, Military Academy and Law School. Finally, a proposal has been made out of this research to improve educational programs so they could be more compliant and more responsive to the needs of security practice in the field of critical infrastructure protection (Keković, Vučić, Despotović, Komazec, 2013).

In this research, the focus is not on the practical aspects of security courses, but attention is paid to those higher education institutions that offer certain disciplines belonging to the field of security sciences.Firstly, as the organizational unit of the Faculty of Security Studies, University of Belgrade, there has been the Department of Security Studies (Department of Security Studies, 2013). Out of the total of 25 disciplines classified here, 24 undoubtedly belong to the field of security sciences[3]:

- Undergraduate academic and undergraduate vocationalstudiesof the Faculty of Security: Basics of Security, Conflict Theories, Security Systems, Security Management, Security and Protection Systems, Information Security, Human Security, Basics of Economic Security, Corporate Security, Intelligence and Security Systems, and Design of data protection system;

- Master academic studies: The Security System of Serbia, the Management of National and Human Security;

- Doctoral studies: Contemporary Security Studies with Security System Theory, Security Policy and Security Strategy, Communication Aspects of Security;

- Specialist studies: Terrorism as a security threat and counterterrorism management, Design and realization of the system of security and protection of persons, property and business, Security system of banks, post office and other financial institutions, Security system of legal persons dealing with production, sales and service activities, a System for securing the transportation of money, gold, cultural goods and other values, the Defense against terrorism - actions and operations, Religion and Terrorism, Terrorism and Informatics.

At the same time, some disciplines are classified within other departments, but due to its multidisciplinarity, can be considered as disciplines of security orientation: Fundamentalsof geopolitics, Logistics in the National Security System, Peace Missions and Conflict Resolution, Contemporary Security Systems and Geopolitical Perspectives (Department of Defense Studies,2013); Environmental Safety and Industrial Safety and Security, Safety and Health at Work (Department of Civil Protection and Environmental Studies, 2013); Legal Basis of Security, Contemporary State and Security Theory, Methodology of the Exploration of Security Phenomena (Department of Social and Human Sciences, 2013). There are almost no such cases at the Department of Human and Social Resource Management (which has a total of 15 disciplines), except for Crisis Management in Security and Defense, Managing education in the field of security and Organizational Behavior in Security (Department of Human and Social Resource Management Studies, 2013).

Therefore, at least 24 disciplines of security orientations are taught at the Faculty of Security. As there are a total of 91 disciplines in all study programs, these security disciplines account for more than 26.37% of teaching material.

3The remaining one discipline studied at undergraduate studies at the Security Department (Informatics) certainly has a link withsecurity, but primarily belongs to other field of science.

The Academy of Criminalistic and Police studies in Belgrade teaches and does reaserches in the field of Criminalistics and Criminology,but disciplines from the Security fieldareincluded in the study programs (Statute of The University of Criminalistic and Police Studies, 2018). At the Academy, Department of Security Sciences operatesas an expert body.

There is a number of 38 coursesatundergraduate vocational studies of Criminalistics. Only 3 courses (7.89% of teaching materials) belong to the fields of Security sciences: National Security, Prevention and suppression of fires, accidents and explosions and the System of Security of Persons and Property.[4]

A total of 55 teaching courses are taught at undergraduate academic studies of Criminalistics. The security science field have a total of 8 courses (14.54% of teaching materials): National Security, Ecological Safety, Emergency Security, System of Security of Persons and Property, Security Management, Risk Management in Protection and Rescue System, Intelligence Methods and International Security.[5]

At the undergraduateacademic Forensic engineering studies, out of 40 courses, only 1 belongs to the field of security (2.5% of teaching material): Human Security. At the undergraduate academic studies of Informatics and Computing, out of 38 courses, one belongs to the field of security: also, Human Security (2.63% of teaching material)

At master academic studies of Criminalistics, out of 9 offered courses, only 1 isfrom the field of security (11, 11%): Terrorism and political violence.[6] Master academic studies of Forensic engineering, as well as atmaster academicstudies in Informatics and Computing, there are no security courses.

Specialist studies are conducted within 3modules.At the module of Safety of persons and property, out of 9 courses 7 belong to the field of security sciences (77, 78%): Endangering persons, property and business, Physical-technical protection systems, Intelligence and counter-intelligence aspects of terrorism and anti-terrorism, Comparative models of security of persons and property, Security and Protection of Personality, Phenomenology of Security Threats and Security Systems. At the module of Executive management in the state administration system (9 coursesoffered)there is no courses classified into the field of security sciences, although it is undisputed that the Managing Security Organizational Systems and Theory of Crises and Conflictsare courses with security orientation. Atthe module of Criminalistic in Combationg Contemporary Manifestations of Crime, out of 9 courses, none of them is from the security field.So, out of the total of 36 disciplines offered, at the specialist studies 7 courses from the field of security are studied (19.4% of teaching materials).

On doctoral academic studies, module Criminalistics and law, out of 12 courses, 2 belong to the field of security sciences (16.6% of teaching materials): Contemporary Security Studies and Security in Emergency Situations. At doctoral academic studies, modules Forensic engineering and Informatics, none of the courses belongs to the field of security sciences.

If all the Academy's study programs are observed, out of the 278 offered courses, 23 of them belong to the scientific field of security, which is 8.27% of teaching material.[7]

4 Although the course Organized Crime and Terrorism is in a thematic field of security sciences, it is classified in the Department of Criminalistic Sciences, because a criminalistic methodology for the suppression of organized crime and terrorism is being studied within it.

5 Although essentially courses of security orientation, the Security of Information and Information discipline is classifiedat the Department of Police Science (electronic protection of electronic data and information), while the Organized crime course is classified at the Department of Criminalistic Sciences (Methods of Combating Organized Crime). Security Management is presented as a subject of security orientation, although it is classified in the Department of Police Science.

6 Although course Crisis Management is of a Security Nature, it is classified in the Department of Social Sciences.

7 The person who passes all the exams can obtain the following professional titles: bachelor of

At the undergraduate academic studies of the Faculty of Law of the University of Novi Sad, there is Department of Internal Affairs (Department of Internal Affairs - Plan 2013, 2013). Out of 39 coursesoffere, fiveare with security orientations (12.82% of teaching material), such as: Security system, Security culture, European Union security system, Security management , The law of private security. Atgeneral department, out of 36 courses, none belongs to security field (General Department - Plan 2013, 2013).

Seven disciplines in the field of security sciences (10.93% of teaching materials) are studied at the general master academic studies (Master studies - General department, 2013), out of a total of 64 (elective) courses: Terrorism, Corruption, Asset and Business Asset System, Personality and Object Protection System, Control of security services, Organized crime and Human trafficking. These disciplines are also studied at master academic studies at the Department of Internal Affairs (Master academic atudies - Department of Internal Affairs, 2013), offering a total of 27 (optional) courses, which is 25.9% of teaching material. Since 2014, at the Faculty of Law, the University of Novi Sad, there are two other master academic programs: National Security and Social Work. Atthe National Security department (Master academic studies – Department of National Security, 2014), out of 15 courses, 10 belong to the field of security sciences (66.6% of teaching materials): Protection of secret information, Economic security, Organization and competence of security services, Financing of terrorism, Human trafficking, National Security Strategy, Security and Human Rights, Security Services Control, Asset and Business Asset System, Personnel and Object Protection System. There is no course belonging to security field at the Social Work department (Master academic studies - Department of Social Work, 2014).

At doctoral studies, departmentfor Public Law, the course Theory of Security System is an advanced course (in the total of 20 offered courses, which is 3, 22% of teaching material) (Doctoral Studies - Public Law, 2016). There are no security coursesat the Private Law department.

In the studied study programs, out of the total number of 232 offered courses, 22 are from the field of security sciences. This is a 9.48% representation, which is not negligible given the primary faculty orientation.[8]

At the Faculty of Law, the University of Kragujevac, there was a National Security department (Curriculum of three-year studies – Department of National Security). It is nowconducted only as the so-called "old study program", and will be releasedonly until the graduation of students who attended it. Out of 24 courses, there are only 2 with undisputed security orientations (8.33% of teaching material): System of security of property and persons and Intelligence Services and National Security, while for 2 can be said that are only partially of a security nature: Combating organized forms of crime and Copyright and industrial espionage. There is no course at the current undergraduate academic studies, master academic studies and doctoral studies with security orientation. It is important to note that in 2016, undergraduate academic studies - Internal Affairs and Security were accredited at this institution (Undergraduate academic studies of Law - Internal Affairs and Security, 2016).At this department, out of 45 courses, only 3 are in the field of security sciences (6.66% of teaching materials): Security Systems, Ecological Law and Private Security Law.

On the studies of the Faculty of Political Sciences of the University of Belgrade, certain disciplines of security orientation are studied in several study programs and modules.

criminalistics: vocational studies, bachelor of criminalistics: academic studies, master of arts of academic studies in criminalistics, specialist of academic studeis in criminalistics and security, PhD in criminalistics, police and security sciences.

8 A student who successfully completes studies at the Faculty of Law acquires the professional title -attorney, with the addition of the level and department of the study that he has completed (eg. law graduate of the Interior) (Statute of the Faculty of Law in Novi Sad, 2016).

Students at the undergraduate academic studies almost do not study the discipline of security orientation. The exception is for several courses such as: Introduction to security studies politics and Peace studies (basic module), Department of International Studies; Security of Serbia and Common foreign and security policy of the European Union, on the modules International Policy and European Integration, and Phenomenology of Violence at Political Science Department (Department of Political Science, 2015).

In percentage, this is a small number of disciplines of security orientation: the Department for Political Science, 1 course from the offered 61, or 1.63% of teaching material; Department for International relations 4 courses from the offered 72 courses, or 5.5% of the teaching material. However, taking into account the fact that there are two other study programs for undergraduate academic studies (Department of Journalism and Communication, a total of 57 courses (Department of Journalism and Communication, 2015) and the Department for Social Policy and Social Work, a total of 59 courses) (Department of Social Policy and Social Work, 2015) that do not study security sciences, then this percentage is insignificant.

At the master academic studies, within the International Security module (Module: International Security, 2015),out of 12 courses, 8 belong tosecurity orientation(about 66.66% of teaching material): Security Sector Reform, Regional Perspective of Peace and Conflict, Securitization and Desecuctification, Contemporary Security Theories, Gender and International Security, Theories and Typologies of conflict, Regional security, Euro-Atlantic security, while 1 course can be conditionally declared as security one: Political regulation of ethnic conflicts and relations.

Also, in the framework of the International Politics module (Module: International Politics, 2015) at master academic studies, out of 23, 6 courses belong to security orientation (26.08% of teaching material): Contemporary Security Theory, Security Sector Reform, Euro-Atlantic Security, Theories and Conflict Typologies, Contemporary Theory of International Relations, Regional Security, while 2 courses can be conditionally declared as security: Political regulation of ethnic conflicts and relations and UN system.

Furthermore, at the master academic studies, within the USA Studies module (Module: US Studies, 2015) 4 courses out of 14 belong to security (28.57% of teaching materials): Contemporary Security Theories, US Foreign and Security Policy after the Cold War, Euro-Atlantic Security, Resistance and Civil Disobedience, while 1 course can be conditionally declared as security, Geopolitics and Geoeconomics.

At the master academic studies, 12 courses were offered within the module International Humanitarian Law and Human Rights Law (Module: International Humanitarian Law and Human Rights Law, 2015). Only 2 are with security orientation (16.6% of teaching material): Political regulation of ethnic conflicts and relations, Theories and conflict typologies, while 2 can be conditionally declared as security: International humanitarian law - rules of warfare and Political regulation of ethnic conflicts and relations.

At the master academic regional studies, the module of the Regional Study of Asia, 7 courses were offered (Regional Studies: Asian Studies Module, 2010).There is 1 with security orientation (14.28% of teaching material): Economic, political and security regional mechanisms of Asia, while 3 can be considered as security ones: Geopolitics and Geoeconomics, Geopolitics and Geoeconomics of Asia, Values and Identity of Asian Societies.

Similarly, out of 11 courses offered within the Regional master program Peace studies, 4 can be classified into a wider circle of security-related courses (36.36% of teaching material): Theory and Typeology of Conflict, Resistance and Civil Disobedience, Conflict Resolution Practice, Regional Perspectives of Peace and Conflict, while 1 course conditionally can be declared as security: Political regulation of ethnic conflicts and relations.

Furthermore, at the master academic studies, within the module Political Violence and the State (Module: Political violence and the state, 2015), out of 10 courses, there are 2 with security orientation (20% of teaching material): Theory and Practice of Overthrow and Terrorism and Antiterrorism, while 1 course can be conditionally declared as security one: Use of the Internet for criminally-political purposes.

17 courses were offered at the master academic studies in Political Analysis and Management in Politics (Master Academic Studies in Politics - Political Analytics and Management in Politics, 2012), 3 of which belong to security field (17.64% of teaching material): Political power, Institutions and corruption, Resistance policy and civil disobedience.

Master academic studies, the Ecological Policy module offere 13 courses (Master Academic Studies in Politics - Module Ecological Policy, 2015) of which only 1 is in the field of security sciences (7.69% of teaching materials): Environmental Security.

Master academic studies of politics, the module of the Politics Studies of Religion offeres 11 courses, of which 2 belong to the field of security sciences (18.18% of teaching material): Analysis of religious conflicts and Religious fundamentalism and extremism, while 1 course can conditionally be declared as security one, Geopolitics and Geoeconomics (Master of Academic Studies in Politics - Module of Political Studies of Religion, 2015).

Master academic International Studies program, the European Studies module, offers 14 courses,master academic studies of politics, module Democracy and Democratization offers 10 courses,master academic studies of politics, module Elections and election campaigns offeres 12 courses, master academic studies of political science, module Political System and Economic Development offeres 11 courses, master academic studies of politics, Gender Studies module offeres 12 courses, master academic studies of political science, module Political analytics and social change offeres 12 courses, master academic studies of journalism offer 11 courses, 11 courses are offered at the master academic Studies of Communicology, 10 at master academic Studies of Culturology, 13 courses at the master academic Studies of Social Policy, 14 at the master academic Studies of Social Workand 13 at the master academic Studies of Public Administration, Local Government and Public Policy. Therefore, out of 143 listed courses offered to students in these 12 master studies, no subject belong to the field of securitysciences.Considering that master studies have a total of 22 modules (excluding the International Master Program: Interdisciplinary Master Studies of South East Europe (ISEES), which is implemented as part of the JoinSEE Tempus project together with the University of Graz), with a total of 273 courses at all departments of the master academic studies, of which 33 courses of security orientation are studied in total, then the percentage representation of the courses of security orientation amounts to 12.087% of teaching material.

At Doctoral studies, module of International and European studies, the courseConflict resolution in the post-Cold War era can be indirectly classified as a course with security orientation.

Analyzing all the levels of study programs and the total teaching material offered at the Faculty of Political Science (604 teaching courses), security sciences are represented with 38 teaching courses, which makes 6.29% of the total teaching material.[9]

9With successful completion of studies at the Faculty of Political Science, the student can get an expert title depending on the module that they graduated from: a graduated politologist, a graduated politologist for international politics, a graduate politologist for European integration, a graduate journalist, a graduated social worker, etc.

DISCUSSION

No higher education institution in the Republic of Serbia offers studying of exclusively security sciences. However, some higher education institutions offer security studies in a larger, and some in a lesser extent.

At the Faculty of Security, University of Belgrade,25 out of 91 teaching courses are security oriented. It is evident that Security studies are the most represented at this institution, which is logical, given that "facultyconductsundergraduate academic, master, specialist and doctoral studies in the field of Security Studies, and fosters scientific research from an interdisciplinary field of security science, which includes security studies, defense studies, human and social resources studies, civil protection studies and environmental protection.[10] In general, it is dedicated to the field of national security in the broadest sense and to the so-called security in emergency situations.

At the Academy of Criminalistic and Police studies, security sciences are only a part of the curriculum, at the Department of Security Sciences. If all the Academy's study programs are considered, out of 278 teaching courses, 23 belong to the scientific field of security.

As for the Law Faculty, University of Novi Sad, 22 teaching courses (out of 232 offered) belong to the field of security. Having in mind that this is faculty specialized in law,this representation is not negligible.[11] In general, offered courses belong to the narrowfield of national security.

At the Law Faculty, University of Kragujevac, out of 24 courses, only 2 undisputedly belongto security field. At this institution, undergraduate academic studies, department for Internal Affairs and Securitywere accredited in 2016. At this department, out of 45 courses offered, only 3 are from security field.

Finally, at all levels of the studies of the Faculty of Political Sciences, University of Belgrade, students are offered with a total of 604 teaching courses, but only 38 disciplines belong tothe field of security sciences. However, even the presence of coursesform security field is commendable, since "faculty deals with education and research in the field of politics, international studies, journalism and communication, social policy and social work."[12] It should be kept in mind that political disciplines are generally compatible with disciplines in the field of security sciences. Finally, it should be emphasized that the Faculty of Political Sciences has set some standards in the development of curricula and in the implementation of teaching disciplines in the field of international security. So, the Faculty of Political Sciences is the most competent higher education institution in the field of international security.

Another aspect of the representation of security disciplines in higher education is their representation by the levels of study programs in which they are conducted.

Of the total number of teaching disciplines of security orientation studied at the Faculty of Security, University of Belgrade (24 = 100%), 11 disciplines (45.83%) are studied at the undergraduate studies, 2 disciplines (8.33%) at the master academic, 8 disciplines at specialist academic studies (33.33%) and 3 disciplines are studied at doctoral level (12.5%).

Of the total number of teaching disciplines, security disciplines studied at The Academy of Criminalistic and Police Studies (23 = 100%), 3 disciplines (13.04%) are studied at vocational

10 "With its curriculum, the Faculty covers interrelated sociological, political, legal, economic, ethical, psychological, humanitarian, civil-military and other aspects of security, human and social resources, defense, civil protection and environmental protection, security of science ... ".http: //www.fb.bg.ac.rs/index.php? option = com_content & task = view & id = 115 & Itemid = 1072, March 27, 2018.
11 Certificates on the accreditation of study programs and institutions available on the official website of the Faculty: http://www.pf.uns.ac.rs/fakultet/37-krol.
12http://www.fpn.bg.ac.rs/o-fakultetu, March, 27, 2018.

studies, 8 disciplines at undergraduate academic criminalistic studies (34, 78%), 1 discipline (4,35%) at undergraduate academic Forensic engineering studies, as well as undergraduate academic studies of Informatics and Computing; 1 discipline at master academic studies (4.35%) and 7 disciplines at specialist academic studies (30.43%).

Of the total number of teaching disciplines of security orientation studied at the Law Faculty ofLaw, University of Novi Sad (23 = 100%), 5 courses are studied at undergraduate studies (21.74%), 17 at master academic studies (73.91%) and 1 discipline (4,35%) at doctoral studies.

Of the total number of teaching disciplines of security orientation studied at all levels of studies at the Law Faculty of the University of Kragujevac, 5 are in the field of security sciences, and all five (100%) are studied at undergraduate studies.

Of the total number of teaching disciplines of security orientation studied at the Faculty of Political Sciences at the University of Belgrade (38 = 100%), 5 courses are studied at undergraduate academic studies (13.16%), 33 disciplines are offered at the master academic studies (86, 84%), and none of the courses of security orientation is studied at the doctoral studies.

This paper presents a quantitative analysis of the representation of teaching content of the security orientation, based on the nominal amount of the number of disciplines studied. However, if the contents are analyzed qualitatively, in the sense that one scientific discipline that is studied in several different modules counts as one, and not as more than one discipline, then the situation drastically changes.[13] Thus, if we observe the number of offered courses of security orientation at the Faculty of Political Sciences at the University of Belgrade, there are a total of 38 at all levels, but almost all elective courses are repeated on almost all modules, and then the actual number of different disciplines is significantly reduced. According to the quantitative logic, the total number of security courses offered at all levels of studies at the Faculty of Political Science is 38, which makes 6.29% of the teaching material in relation to the total number of courses. The Faculty of Security offers 24 security courses, which constitute 26.37% of teaching material, but no course is studied simultaneously in several study programs, and it is clearly seen that the Faculty of Security is the leader in the number of security orientation disciplines offered to students in the total percentage of teaching material. The Academy of Criminalistic and Police studies offers 23 cases, which makes 8.27% of the total teaching material at the institution. At the Faculty of Law in Novi Sad, 22 courses were offered, which accounts for 8.48% of teaching material at that institution. Finally, the Faculty of Law of the University of Kragujevac offers only 2 courses of security orientation according to the old program (8,33% of the total teaching material), and according to the newly accredited program 3 courses, which makes only 6, 66% of teaching material.

CONCLUSION

Although formally not declared as science, the practice of studying disciplines in the field of security sciences indicates the justification of the need for their introduction into this list. The reasonsare various. One is that security sciences include an autonomous and integral corpus of several types and groups of scientific disciplines, characterized by an independent

13 For example, at the Faculty of Political Science, Peace Studies subjects, Introduction to Security Studies, Security Sector Reform, etc. appear on several study programs. Although qualitative is one discipline, they are nominally-quantitatively displayed as more disciplines. Since most similar subjects are studied in several different study programs, it can be said that the difference between the nominal quantity of the subject and the difference in the subject matter is high. Also, within the framework of the studies of The Academy of Criminalistic and Police studies, at the Law Faculty in Novi Sad, several courses are taught within several study programs. Only within the Faculty of Security, no discipline is studied simultaneously in two or more study programs.

system of scientific knowledge. At the same time, they are fundamental and to a certain extent applied disciplines as they tacklewith security phenomena, processes and conditions. Each of them has a unique and differentiated scientific course, as well as an inherent methodology, language and theory. The contrary interpretations by which they are military, legal or political disciplines are unfounded, as their autonomy is confirmed by their scientific constituents. In addition, it is also a highly developed field of scientific research, as evidenced by numerous scientific institutes and research projects. Finally, several types of occupations belonging to the security field were differentiated. Thus, security sciences are a real need for security practice.

Nominally, security sciences are mostly studied at the Faculty of Security, University of Belgrade. This is justifiable, given that it is a faculty specialized in the provision of knowledge in the field of security. On a much smaller scale, security sciences are also being studied at the Faculty of Law, University of Novi Sad, Academy of Criminalistic and Police Studies, Belgrade, Faculty of Political Sciences, University of Belgrade and Law Faculty, University of Kragujevac. The Academy of Criminalistic and Police Studies is specialized in educating personnel for the needs of the security sector, primarily the police, while at the Faculty of Law there is a department for Internal affairs, which specializes in educating lawyers of the internal affairs. Unlike the above-mentioned higher education institutions, the Faculty of Political Science generally provides knowledge in the field of International security.

On the other hand, the criteria for selecting a higher education institution to study security can also be the level of studies. The largest selection of security courses atundergraduate academic studies is offered at the Faculty of Security and The Academy of Criminalistic and Police Studies. When it comes to master studies, most security courses are offered at the Faculty of Political Science and the Faculty of Law in Novi Sad. In terms of specialist academic studies, the most security disciplines are offered at The Academy of Criminalistic and Police Studies, and when it comes to doctoral studies, that is the Faculty of Security, University of Belgrade. Security knowledge onundergraduate vocational studies is offered only at The Academy of Criminalistic and Police Studies.

Finally, if someone wants to obtain their undergraduate and postgraduate education at only one of the listed institutions, they are recommended the Faculty of Security, Faculty of Political Sciences, The Academy of Criminalistic and Police Studies and, ultimately, the Faculty of Law in Novi Sad and the Faculty of Law in Kragujevac. Of course, in the case of the last three higher education institutions, it is only about the possibility of choosing to study scientific disciplines of security orientation that they can, but do not have to use. In the case of the Faculty of Security, security disciplines are mandatory studies in the first two years of undergraduate studies, and to some extent at other levels of study.

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SECURITY CHALLENGES AND PILLARS OF THE SERBIAN FOREIGN POLICY

Žarko Obradović, PhD
University of Belgrade, Faculty of Security Studies

Abstract: Major security challenge faced by the Republic of Serbia in its international relations is related to the attempt of a group of countries (acting individually, jointly or within international organisations' bodies) to deny Serbia of the right to autonomy in making decisions on the most important state interests and to coax (force) Serbia to voluntarily renounce a part of its territory, i.e. to recognise the independence of the so called Kosovo state, as a part of the process of accession of Serbia to the European Union. Having in mind these endeavours of some states and taking into account the advice offered by Archibald Reiss to Serbia and its citizens in his political testament "Listen, Serbs!" made a century ago, relating to 'friends and enemies' and 'wrong grouping' of states in international relations, this Paper will try to answer the questions about the extent to which the 'four pillars' (bases) of the foreign policy contribute to tackling security challenges faced by the Republic of Serbia, about whether these 'pillars' contribute to strengthening (or weakening) the position of Serbia in international relations, and about whether the advice offered by Mr Reiss is still applicable today. Serbia has established four pillars of its foreign policy, i.e. strategic partnerships and commitments. These are, above all, the membership in the European Union as a community of states, but also the development of friendly relations with leading countries in the world: the United States of America, the Russian Federation and the People's Republic of China. By analysing the actions of these states that Serbia has defined as the most important partners in its foreign policy actions, i.e. the treatment of Serbia by the EU, the USA, Russia and China and their mutual relations in the last decade, this Paper will show the way in which some of the Serbian foreign-policy pillars jeopardise its state and national interests, how the Republic of Serbia reacts to these security challenges and to what extent the Serbian actions are based on the lessons learned from the past.

Keywords: security challenges, foreign policy pillars, state interests of Serbia, pieces of advice by Archibald Reiss**.**

INTRODUCTION

Almost a century ago, Dr Archibald Reiss, a great friend of Serbia and a witness to numerous wars and accompanying events during the First World War, in his political testament titled "Listen, Serbs!" analysed the virtues and flaws of the Serbian people of the time through numerous concrete events and gave his estimates and advice about the friends and enemies of Serbia. Reiss was resolute in his estimate that Serbia would never manage to turn its enemies into friends (more details in: Reiss, 2008, pp. 30-31). In addition, Reiss indicates the

possibility of a wrong grouping of countries (Ibid, pp. 61-64), easily forgetting everything bad that was done to Serbia by its enemies, choosing friends which are actually not its friends and quickly reconciling with the "worst enemies of the country".Taking into account the words by Archibald Reiss and the present time, the fact that Serbia is facing the Kosovo issue, and that Serbia has proclaimed that its foreign policy priorities are its membership in the EU, the development of the best relations with the Russian Federation, the PR of China and the USA (the so called pillars of its foreign policy), along with the preservation of its territorial integrity and sovereignty, it is import to analyse their position on Kosovo and Metohija (KiM), as the most important security challenge Serbia is facing.

GENERATION OF KOSOVO ISSUE AND ITS IMPORTANCE FOR SERBIA

The Kosovo issue has existed for a very long time, first as an issue related to the position and rights of the Albanian national minority within Serbia (and Yugoslavia earlier), and then, since the bombing of the FR of Yugoslavia (and Serbia) in 1999 and putting the area of Kosovo and Metohija under the international United Nations civilian and military administration, as an issue of destiny of the Autonomous Province of Kosovo and Metohija and prevention of the secession of this part of the Republic of Serbia's territory. During the 1990s, this purely internal issue of a sovereign country was internationalised owing to the support provided to the Albanian national minority by some western countries. In the beginning of 1990s, the Albanian separatists within the Kosovo Liberation Army (KLA), with a view to accomplishing their goal - secession of Kosovo and Metohija from Serbia, started undertaking terrorist activities (killing and kidnapping the representatives of the authorities and civilians, attacking public institutions, planting bombs, etc.). The Kosovo Liberation Army had a support of the USA and German intelligence services by providing them with the necessary arms and money, while Albanian, British, American and Turkish military instructors provided training to the KLA at training grounds in Albania (Krivokapić, 1999, p. 8).

With the support of some western countries, in 1999 the Kosovo issue 'served' the NATO member states as a basis for bombing the FR of Yugoslavia (more details in: Obradović, 2017, pp. 620-644).

The NATO member states that directly participated (by using armed forces) in bombing and other hostilities against the FR of Yugoslavia are the following thirteen: the United States of America, Great Britain, France, Germany, Italy, Turkey, Canada, Spain, Portugal, the Netherlands, Norway, Belgium and Denmark. Among these, the USA had a leading role in many fields of action (Krivokapić, ibid, p. 129). Other NATO member states: Island, Czech Republic, Poland, Hungary, Luxembourg and Greece did not directly participate in armed strikes against the FRY, but as the members of this military alliance they allowed the use of their territories (airspace, railway lines, etc.) for carrying out the strikes, or they participated in making decisions on the attack against the FRY, the way of waging war, selection of targets, etc. (Ibid, pp. 129-130).

The armed aggression against the FR of Yugoslavia and military actions ceased on 10 June 1999 on the basis of the United National Security Council Resolution 1244 (see more details in: UNSC Resolution 1244, 1999), and the whole area of Kosovo and Metohija was put under the international civilian and military administration of the United Nations. The international military forces were deployed in five zones: British, American, French, German and Italian (Foreign troops in Kosovo, 'Vreme' newspapers, No. 443, 1999) by which the soldiers of these countries 'took responsibility' for everything that happened within these zones. The inter-

national military forces, although formed by the United Nations, were under the command and control of the NATO (Stevanović, Ibid, p. 299). Neither the military, nor the civilian mission of the United Nations (KFOR and UNMIK) fully conformed to the provisions of the Resolution 1244. By remaining silent, not responding and taking inadequate steps, UNMIK and KFOR contributed to establishing violence and lawlessness in Kosovo and Metohija, expulsion of Serbs and other non-Albanian population from KiM and essentially, they were accomplices in segregating KiM from Serbia and creating the so called state of Kosovo.

A new phase of the Kosovo issue started on 17 February 2008 when Kosovo and Metohija provisional institutions declared the so called independence of Kosovo. The Republic of Serbia, of course, did not recognise the independence of Kosovo.

This self-declared independence was soon recognised by a large number of western countries that have actively been supporting all the requests of the Kosovo Albanians for the past years. Moreover, almost all NATO member states were among them and directly or indirectly participated in the bombing of the FR of Yugoslavia in 1999 (except for Spain and Greece), and the most powerful among them (the USA, Great Britain, France, Germany and Italy) recognised the independence of Kosovo within the first several days after its declaration - in the period from 18 to 21 February 2008 (List of the countries that recognised the independence of Kosovo/E-Papers of Kosovo and Metohija).

The illegal unilateral declaration of independence of Kosovo, i.e. an attempt of secession of a territory of the Autonomous Province of Kosovo and Metohija, is for Serbia a 'greatest threat to the security of the Republic of Serbia' which was clearly emphasised in the National Security Strategy of the Republic of Serbia (The National Security Strategy of the Republic of Serbia, 2009, p. 9), which was adopted by the National Assembly in October 2009.

Draft of this National Security Strategy of the Republic of Serbia from 2017 also notes that "unlawfully and unilaterally proclaimed independence of the territory which is administratively encompassed by the Autonomous Province of Kosovo and Metohija [...] is unacceptable [...] for the Republic of Serbia because it threatens its national values and interests" (The National Security Strategy of the Republic of Serbia - Draft, 2017, p. 11). Keeping Kosovo and Metohija within the Republic of Serbia is an important issue and this is why Serbia is "committed to protecting its own interests, as well as the interests of Serbs and other non-Albanian population in this Province, by means of dialogue and acting in accordance with the UN SC Resolution 1244 and basic norms of international law, and it will continue protecting its sovereignty and territorial integrity by using all available diplomatic and legal means" (Ibid, p. 17). The Draft Strategy reiterates that "Serbia will not recognise the unilaterally declared independence of its southern province, but in the interest of regional stability and better Serbian-Albanian relations it will continue the EU-facilitated dialogue with provisional institutions of the self-government from Pristina until a long-term, sustainable and mutually acceptable agreement is reached" (Ibid).

POSITION OF FOREIGN POLICY PILLARS OF SERBIA ON KOSOVO ISSUE

Serbia was granted the EU candidate state status on 1 March 2012. The negotiations on Serbia's accession to the EU were launched by an Intergovernmental Conference on 21 January 2014. So far, Serbia has opened fourteen negotiating chapters and provisionally closed two of them ('Process of negotiations on the accession of Serbia to the European Union'). Chapter 35 titled 'Other issues' was opened at an Inter-governmental conference on 14 December 2015

in Brussels and it refers to normalisation of relations between Serbia and Kosovo. Beside the name of Kosovo there is an asterisk. The footnote of this document says that this designation is "without prejudice to positions on status, and is in line with UN Security Council Resolution 1244 and International Court of Justice (ICJ) Advisory opinion on the Kosovo declaration of independence" (Conference on Accession to the European Union - Serbia). From the contents of this document it may be concluded that fulfilling it, i.e. finalising the negotiations within Chapter 35, is the key condition for fulfilling all the requirements necessary for finalising the negotiations on the accession of Serbia to the European Union. Namely, although it is noted in the introduction of the document that "the advancement of Serbia's EU accession negotiations will be guided by Serbia's progress in preparing for accession, which will be measured in particular against Serbia's continued engagement towards a visible and sustainable improvement in relations with Kosovo, as well as the other requirements contained in point 23 of the Negotiating Framework (Judiciary and fundamental rights - note by Ž.O)", and that the negotiations may not be "considered as final until an overall agreement has been reached for all chapters" (Ibid, p. 2), and further elaboration of the provisions actually indicates the key importance of this issue, or this Chapter, for the whole Serbia - EU negotiation process. Chapter 35 does not replace the dialogue between Belgrade and Pristina conducted under the auspices of the High Representative of the Union for Foreign Affairs and Security Policy, but presents the link between this dialogue and the accession negotiations. Chapter 35 then lists, in a clear order, all the obligations that Serbia needs to fulfil within the negotiation process, both related to the implementation of the First Agreement from April 2013 and the May Plan for the implementation of the Agreement on Energy and Telecommunication and to the implementation of the agreements reached within the technical dialogue since March 2011 until February 2012. What makes this Chapter particularly important can be seen from the note that "if progress in the normalisation of relations with Kosovo significantly lags behind progress in the negotiations overall, due to Serbia failing to act in good faith, in particular in the implementation of agreements reached between Serbia and Kosovo" the Commission may, on its own initiative or on the request of one third of the Member States, propose to "withhold its recommendations to open and/or close other negotiating chapters" (Ibid, p. 4) (underlined by Ž.O.), or change its manner of work "until this imbalance is addressed". Therefore, (non-) abiding to the provisions of Chapter 35 related to the 'normalisation of relations between Serbia and Kosovo', i.e. fulfilling the obligations of Serbia arising from this document (with an assessment by the Commission) has a direct impact on the destiny of the overall negotiation process, and/or on Serbia's membership in the European Union.

The EU enlargement strategy for the Western Balkans, adopted by the European Commission on 6 February 2018, emphasises the importance of the "normalisation of relations between Belgrade and Pristina" for the European path of Serbia, i.e. for acquiring the EU Member State status, but it also indicates in which way Kosovo status is treated in the Commission's documents. The enlargement strategy notes that "without effective and comprehensive normalisation of Belgrade-Pristina relations through the EU-facilitated Dialogue there cannot be a lasting stability in the region." A comprehensive and legally binding normalisation agreement is urgent and crucial so that Serbia and Kosovo can advance on their respective European paths (underlined by Ž.O.) (European Commission, 2008, p. 8).

Furthermore, in the part referring to closing the negotiations, once all closing benchmarks for all chapters have been met and Member States agree to closing overall negotiations in an inter-governmental conference, in the case of Serbia this means that "irreversible implementation of the comprehensive, legally-binding agreement with Kosovo reflecting the consolidation of the full normalisation of relations will need to have been reached" (Ibid, p. 9).

Although the footnote of the document explains that the asterisk used with the name of Kosovo is a designation which is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence, there are several references in this document to the Western Balkan countries (including Kosovo, etc.), the WB6 format (6 countries of the Western Balkans - note by Ž.O.), etc. Kosovo is discussed about in the part of the Strategy that refers to the future steps that the Western Balkan countries need to take on their path towards the EU. The Strategy for the Western Balkans, therefore, despite the abovementioned limitations, still mentions Kosovo as one of the six states in the area of the Western Balkans.

The fact that the contents of documents drafted by the bodies of the European Union also reflect the relation of powers between its Member States, positions of those countries and problems they face is plastically demonstrated by the contents of the Declaration adopted at the EU-Western Balkans Summit held on 17 May 2018 in Sofia (Bulgaria). The Prime Minister of Spain, due to their issue with Catalonia and possible comparison with Kosovo, was not present at the official part of the Sofia Summit because he did not want with his presence to practically recognise the status of Kosovo as a state equal to other states. Moreover, the Sofia Summit Declaration does not use the term Western Balkan countries, but the term 'Western Balkans partners' which is mentioned several times, and the term WB6 is also not used and no joint declaration by the EU and the Western Balkans was signed, so that this Declaration is designated as a document of 28 EU Member States ('What is written in the Sofia Declaration').

Chapter 35, like other relevant EU documents that indicate a common position of the EU on Serbia (EU, negotiating position for Chapter 35), and thus on the issue of 'normalisation of Serbia-Kosovo relations', does not provide a full answer to the question of what the notion of 'normalisation of relations' includes. Whether this refers only to fulfilling the obligations laid down in the Negotiation Framework, along with the results achieved in the dialogue between the representatives of Belgrade and Pristina and the High Representative of the Union for Foreign Affairs and Security Policy, or something else, additional.

Stressing the need for concluding a "legally binding agreement on normalisation of Belgrade - Pristina relations" as the most important condition for the Serbian membership in the EU has officially been present since 2012, but at the time, it was one of the seven conditions that Berlin (Germany) considered important for Serbia's advancement on its European path. A group of MPs from the German Bundestag, members of the ruling Christian Democratic Union lead by Andreas Schockenhoff, a close associate of the Federal Chancellor A. Merkel, visited Serbia in September 2012 and presented German position on Belgrade-Pristina relations. The German conditions were, at the time, considered as the requirements that Serbia needed to meet in order to be able to initiate the EU accession negotiations. One of the requirements Belgrade needed to meet was to conclude a "binding agreement on the establishment of good-neighbourly relations with Pristina" ("What does Angela's party expect from us", 13/09/2012 "Return in 2012 – 'the Berlin Plan' and words by Oliver Ivanović"). According to Schockenhoff, this agreement was supposed to be in a written from, and it was up to the partners - Belgrade and Pristina - "to design the contents of the statement", and he used the Agreement on Good-Neighbourly relations as a good example. The German parliamentarians, led by Schockenhoff repeated these conditions in March 2013 when they visited the Republic of Serbia again ('Seven conditions for the EU remain', 19/3/2013; "Schockenhoff: Seven conditions for starting the negotiations remain", 19/03/2013). Although when presenting the 'seven conditions', the German parliamentarians emphasised that these were not the 'criteria of the German Government, but of the ruling party in Germany' ('What does Angela's party expect from us'), the fact that one of the conditions - relating to the conclusion of a binding agreement on normalisation of Belgrade-Pristina relations, became a part of the EU Negotia-

tion Framework for Serbia that was presented in January 2014, demonstrates that meanwhile this German condition was accepted by all other EU Member States as well. This document contains the principles on which the negotiations on the accession of Serbia to the EU are based. With regard to the normalisation of Serbia-Kosovo relations, it is important to point out two positions: firstly, this issue will be considered within Chapter 35 'Other issues', and secondly, the engagement of Serbia towards "tangible and sustainable further progress of relations with Kosovo* [...] should gradually, by the end of Serbia's accession negotiations, lead to a comprehensive normalisation of Serbia-Kosovo relations, in the form of a legally binding agreement (underlined by Ž.O.)" (The Accession Conference with Serbia, point 23, p. 7).

The fact that without accepting a legally binding agreement with Kosovo, Serbia will not be able to become an EU Member State was confirmed by the President of the Republic of Serbia, Aleksandar Vučić, in November 2017. "It is not an issue of recognising the independence, nobody speaks about this in this manner, but rather implies it between the lines, but not in this manner, but this is what I can tell you already now" ('A binding agreement with Kosovo, a condition for acceding the EU since 2012', 17/11/2017).

Consistency of Germany as regards the affirmation of Kosovo's independence and exerting pressure on Serbia to recognise this so called independence are confirmed by the statements of German officials. As far back as in 2012, the President of the European Parliament Martin Schulz and the Chair of the German Bundestag Committee on Foreign Affairs, Ruprecht Polenz, although from different parties, had the same message for the Serbian authorities, which was that "before accessing the EU, recognition of Kosovo is inevitable" ("Serbia to choose: Kosovo or EU", 13/9/2012). The German position has not changed, which is confirmed by the words of the current Chair of the German Bundestag European Affairs Committee Gunther Krichbaum that "relations between Serbia and Kosovo should be completely normalised before accessing the European Union" ('Normalisation is normalisation.... No more, no less', 19/5/2018), while explaining Serbia-Kosovo relations as "above all, a character of relations between two states".

The representatives of the Republic of Serbia have for several years now been having a dialogue with representatives of Pristina on various issues, under the auspices of the European Union, i.e. the High Representative of the Union for Foreign Affairs and Security Policy. The talks have had their ups and downs. Several documents have been accepted and signed for the past years. The one which is quite relevant among them is the 'First agreement of principles governing the normalisation of relations between Belgrade and Pristina' signed in April 2013 in Brussels. With regard to the contents of the Agreement, it is important to emphasise that in significant number of its provisions it implements the position of Angela Merkel, the Chancellor of the FR of Germany, presented during her visit to Serbia in August 2011 on the need for abolishing 'parallel Serbian structures' in Kosovo (See more details in: 'Visit by Angela Merkel to Belgrade: when the Chancellor looks at her watch' 25/8/2011;'Return in 2012 – 'the Berlin Plan' and words by Oliver Ivanović', 15/8/2018).

Although over five years have passed since signing the Agreement, the so called Kosovo authorities have still not started establishing the Community of Serbian Municipalities, just like they have not applied other parts of the Agreement that call into question the so called autonomy of Kosovo in any manner, which has not been criticized by western countries: either by the EU institutions, or by the High Representative of the Union for Foreign Affairs and Security Policy.

A new 'round' of negotiations between Belgrade and Pristina has been scheduled for the beginning of September 2018. Meanwhile, the ideas that have been promoted in the public are related to the 'issue of Serbia's borders' (by Belgrade), i.e. a 'correction of borders' (by Pristina), of course with different views on the importance and content of this issue. The is-

sue of 'changing borders' was immediately negatively responded to by Germany and the UK (Merkel finally speaks about 'borders in the Balkans' 13/8/2018; 'Keef: The idea about division or exchange of territories between Kosovo and Serbia has its risks and price' 25 August 2018), the countries that, in violation of the international law and the UNSC Resolution 1244, recognised the change of the Serbian borders by recognising the so called independence of Kosovo. The US President's national security adviser John Bolton supported a possibility that Belgrade and Pristina find a mutually satisfying solution ("The USA does not exclude border correction", 25/8/2018, pp. 1, 6). On the eve of the European Forum Alpbach, held on 25 August 2018 in Vienna, a meeting between the President of Serbia Aleksandar Vučić and the President of Pristina provisional institutions Hashim Thaçi had been held a day before, facilitated by the Austrian Chancellor Sebastian Kurz and the European Commissioner Johannes Hahn ("Vučić: If we can't do it, who will?; Thaçi: The window has been open ajar", 26/08/2018). Not wishing to reveal the details of their talks in Vienna, Vučić and Thaçi expressed their hope to continue the talks and settle the common issue. The President of Serbia, Aleksandar Vučić, estimated that an "agreement between the Albanians and Serbs would be an enormous achievement for the whole region", that the issue with the Albanians needed to be solved "to the benefit of both peoples and the whole region" ('Vučić in Alpbach: We spoke about Kosovo, without any details until the full agreement is reached", 26/8/2018) and that he expected a "greater support from the EU in the process of tackling the Kosovo issue" ('Vučić: To solve the problem with the Albanians to the benefit of both peoples' 26/08/2018). Thaçi said that a potential agreement would be a historical success and that "not a single country should be against a peace agreement with Belgrade, even it included the border correction" (Ibid). Support for the continuation of the dialogue between Belgrade and Pristina and to achieving a potential agreement was provided immediately by the European Union under whose auspices the dialogue is led. The European Commissioner, Johannes Hahn said that "Brussels should accept an agreement between Serbs and Albanians to settle their long-standing dispute over Kosovo", and that it was about a "bilateral solution which should not serve as a blueprint for other issues" ('Border correction acceptable for the European Union', 27/08/2018). Besides the wish to tackle the Kosovo issue through talks between the representatives of Belgrade and Pristina, the European Commissioner also added that the potential agreement on the change of borders could not be used as a model for tackling other problems in the region. The Spokesperson of the High Representative of the Union for Foreign Affairs and Security Policy also expressed support to direct negotiations with a view that the "Presidents of Kosovo and Serbia should be given some space to agree on the contents of a comprehensive solution that would be supported by the international community" and that the "EU as a facilitator may not interfere with some of its elements" (Ibid) and that the solution should be comprehensive, sustainable, realistic and in accordance with international law.

Through its political and military actions, the United States of America had a direct influence on the events in the Balkans, the positions of western countries on Serbia, and on the creation of Kosovo state. As a great power and a decision-making country with regard to all the happenings in the Balkans since the end of 1990s until today, the USA has supported and assisted the Kosovo Albanians, both the KLA and their political representatives, in implementation of their separatist goals, secession of Kosovo and Metohija from the Republic of Serbia: it played a major role in organising the talks in Rambouillet in the beginning of 1999 and it advocated the positions of Kosovo Albanians; in using a military solution for tackling the Kosovo issue, by bombing Yugoslavia (Serbia and Montenegro) from 24 March to 10 June 1999 in which it was most active of all; as a part of international military forces that, under the auspices of KFOR, took over the care for Kosovo security; in organising negotiations between Belgrade and Pristina about the future status of Kosovo in 2006, which failed because Serbia

did not want to accept the solution that meant Kosovo's independence (See more details in: Obradović, 2017, pp. 638-639), etc.

The USA was one of the first countries to recognise the so called independence of Kosovo (18 February 2008) and ever since, they have been actively promoting Kosovo's independence and its accession to various international organisations. The USA is a guarantor of Kosovo's independence and security. The extent to which the USA is important for Kosovo and to what extent it actually decides on its destiny is best confirmed by the statement of the Prime Minister of the so called Kosovo Government that "with regard to the foreign policy we (Kosovo - note by Ž.O.) are part of a club of the countries lead by the USA" (Haradinaj: "The USA rules in Kosovo, and I probably killed someone during the war", 16/4/2018). These words actually demonstrate Kosovo's position that without the USA's support there would be no so called independence, no recognition by other countries, and no autonomy of Kosovo could be discussed at all. The USA, on the other hand, is against all the initiatives launched by Serbia at international organisations with an aim of tackling the Kosovo issue, and of course against the estimates Serbia provides about the situation in Kosovo.

Such a position of the USA on Serbia and the Kosovo issue has cast a serious shadow on the diplomatic relations between the two countries, which have existed since 1881 and which have been constantly advanced. Serbia and the USA have been allies in two World Wars, fought against common enemies and had the same or similar views on numerous issues and problems facing the international community. The character of the relations between the two countries after the World War I is best demonstrated by the fact that 100 years ago, on 28 July 1918, a flag of Serbia waved over the White House which was an 'act of the US President Woodrow Wilson to show respect towards the Serbian people for the sacrifice they submitted in the World War I'. ("I'd be surprised if Kosovo was EU's condition for Serbia', 21/7/2017).

Evaluation of the quality of current relations between Serbia and the USA is almost the same by both sides. For the USA, the relations between the two countries are "good and strong and constantly developing" (Scott: I hope that the compromise will be reached, perhaps even this year, 2/7/2018), while the Serbian side points out that "our relations with the USA are multi-layered and multi-meaningful, and we as small nation should strive for the best possible relations with this largest power" (Vučić: We expect that the USA understands very well what Serbia cannot provide, 'Politika' newspapers, 28/7/2018). The United States supports Serbia in its intention to become an EU Member State and in its activities to strengthen peace and stability in the region.

The USA has the position that the independence of Kosovo is 'final and unchangeable' and request and expect from other countries, including Serbia, to accept Kosovo as an independent country. Various high representatives of the US administration have not missed any opportunity when visiting Belgrade for the past several years to clearly express the position of the USA that the Belgrade-Pristina dialogue (which is EU-facilitated) should lead to normalisation of relations, i.e. recognition of the so called Kosovo's independence and that, besides this, their goal is the "integration of Kosovo in the international system, which includes Kosovo's becoming a UN member state" ('Palmer: We expect normalisation of relations between Belgrade and Pristina by the end of 2018', 16/4/2018). Serbia does not want to accept such an estimate. Since the establishment of the new US administration after the victory of Donald Trump in the US presidential elections, the Serbian state leadership has made a large number of contacts with the US officials and introduced them with the Serbian positions on Kosovo and Metohija. The situation started changing. This does not mean that the USA has changed their position on Kosovo and recognition of its independence. However, now they are willing more than before to listen to Serbia's arguments and to take account of the real situation in Kosovo and Metohija. Thereby, the US President's national security adviser John Bolton said

about the announced Belgrade-Pristina talks and possible 'border changes' that the US policy was that "if the two parties can work it out between themselves and reach an agreement, we don't exclude territorial adjustments" (Bolton: We will not interfere in the agreement between Belgrade and Pristina", 24/8/2018). The new approach was confirmed by the US President Donald Trump himself in his talks with Angela Merkel on Belgrade-Pristina dialogue and tackling the Kosovo issue where it was concluded that they "support all talks that may lead to the goal" (solution to the Kosovo issue - note by Ž.O.) being careful that "it does not have a domino effect and cause instability in other parts of the region" ('Merkel and Trump on Belgrade-Pristina dialogue: Solution for Kosovo without a domino effect, 'Politika' newspapers, 29/08/2018).

Unlike the USA and a large number of EU Member States that participated in creating the so called State of Kosovo and that oppose or ignore Serbia's position on the need to tackle the Kosovo issue, while expecting Serbia to recognise the so called Kosovo's independence, the Russian Federation, and the People's Republic of China, on the other hand, have had the same position since the beginning of raising the Kosovo issue at the international level. These two countries support Serbia and require that Kosovo issue is tackled in compliance with international law and UNSC Resolution 1244, and that all disputes are settled in a peaceful manner through dialogue.

Contemporary inter-state relations between the Republic of Serbia and the Russian Federation, that have lasted for 180 years now, are extremely good and developed, which was confirmed by signing a Declaration on Strategic Partnership in 2013. The cooperation exists in all fields: political, economic, military, cultural, etc. During the course of history, Serbia and Russia fought against a common enemy several times. There are constant consultations between the two countries about their participation in the activities of the United Nations and other international organisations. As a permanent Security Council member state, the Russian Federation has provided Serbia with support on numerous occasions and with assistance to preserve territorial integrity and sovereignty of Serbia. The importance Russia gives to Serbia is demonstrated by the fact that Aleksandar Vučić, the President of the Republic of Serbia was the first foreign statesman received by Vladimir Putin after he had been re-elected as the President of the Russian Federation ('Meeting of the Presidents of the Republic of Serbia and the Russian Federation in Moscow: Putin will visit Belgrade by the end of the year' 09/05/2018). Other highest officials of the two countries also have constant contacts, which indicates the closeness of the bilateral relations. With respect to Kosovo issue, Russia has supported Serbia in its diplomatic activities since the beginning. Russia opposed the bombing of the FR of Yugoslavia (Serbia and Montenegro) in 1999, just like it opposes the independence of Kosovo. At the United Nations, during the discussions on the situation in Kosovo and Metohija, Russia has criticized the work of UNMIK and KFOR on several occasions, defending the interests of the Serbian people and Serbia. Russia is against the reduction of the number of the Security Council sessions in which the situation in Kosovo is discussed. Discussions on the Kosovo issue at the United Nations, and/or adoption of any solutions cannot be achieved without the consent of Russia (Ibid), which is good for Serbia having regard to the character of bilateral relations. As regards the EU-facilitated Belgrade-Pristina negotiations, Russia has criticized the EU several times because the Brussels Agreement has not been implemented and because the Community of Serb-majority Municipalities has not been established. Russia advocates the implementation of the UNSC Resolution 1244, and it supports the 'actions taken by Belgrade to implement this most important international document' ('Serbia: a bill without a waiter", 24/08/2018). Russia has provided an active support to Serbia at international organisations in order to prevent the accession of Kosovo to UNESCO, Interpol or the World Customs Organisation.

Another great power that has the same position on Serbia and Kosovo issue is the People's Republic of China. Serbia, as a legal successor to former Yugoslavia has had diplomatic relations with the PR of China since 1995. These relations have always been friendly, but the quality of the international relations has improved in the past decade like never before in their history. In June 2016, during the official visit of Xi Jinping, the President of the People's Republic of China, to Serbia, several agreements were signed, and the one that should be emphasised for its importance is the 'Joint Statement of the Republic of Serbia and the PR of China on the Establishment of a Comprehensive Strategic Partnership' ('Joint Statement of the Republic of Serbia and the PR of China on the Establishment of a Comprehensive Strategic Partnership', 18/6/2016). China estimates the relations with Serbia as the 'relations of steel friendship'. This is confirmed by numerous meetings of the highest representatives of both countries for past several years, a huge number of signed international agreements in various fields, joint implementation of numerous infrastructural projects in Serbia, investments of Chinese companies into the Serbian economy, Serbia's activities within the cooperation process between China and Central and Eastern European countries (16+1 process), 'One Belt, One Road', etc. (See more details in: Obradović, 2016, pp. 121-137). Serbia is China's most important partner in the South-East Europe, and certainly most important among the Balkan countries. Serbia's geopolitical position in the Balkans and China's ambitions for cooperation with Europe (including the Balkan countries) within the implementation of a global development project 'One Belt, One Road', make the Serbia-China cooperation and relations even more important.

As regards the position on Kosovo issue, it should be noted that the PR of China has always supported Serbia. China opposed the bombing of Yugoslavia in 1999 and it itself was a victim of the NATO military action against the FR of Yugoslavia. Position of the PR of China on Serbia and KiM is most clearly demonstrated in a joint statement of the two countries on the comprehensive strategic partnership in which China "confirms that it respects the sovereignty and territorial integrity of Serbia, that the issue of Kosovo and Metohija needs to be solved in line with the UN Charter, by observing the Security Council Resolution 1244, and that an acceptable solution should be found through dialogue and negotiations". ('Joint Statement of the Republic of Serbia and the PR of China on the Establishment of a Comprehensive Strategic Partnership').

The PR of China has of course not recognised the unilaterally declared independence of Kosovo. At the United Nations China requests that the Resolution 1244 is respected and during the discussions on the situation in KiM, it has given negative estimates about the work of the UN missions and the situation in KiM, on several occasions. China supports Belgrade - Pristina talks in Brussels, requires implementation of the agreements signed and the establishment of the Community of Serb majority municipalities.

Just like Russia, the PR of China supports Serbia's activities at international organisations in order to prevent illegal membership of the so called state of Kosovo in them. Together with Serbia, and acting towards the third countries, China opposed Kosovo's accession to UNESCO, just like it opposed its accession to Interpol and World Customs Organisation

CONCLUSION

Based on all the above mentioned referring to the position of the 'pillars of Serbia's foreign policy' to the Kosovo issue as the largest security challenge facing Serbia, and their position on Serbia, the following may be noted:

- As a small country in European scales (according to the size of its territory and population), throughout its entire history, Serbia has faced numerous challenges in which it acquired friends and opponents. The Kosovo issue has shown that the interests of great powers are a permanent category and that they have an advantage over the international law and adopted documents, and in particular over the character of bilateral relations with Serbia. Archibald Reiss was right when he claimed that it was difficult to turn an enemy into a friend, that there were friends who were actually not friends (their interests prevail) and that it was difficult to turn a hostility into a quick reconciliation. This has been confirmed by the position of a large number of western countries, headed by the USA, and including the countries proclaimed by Serbia as pillars of its foreign policy, to Kosovo and Metohija, i.e. Serbia;

- The European Union greatly affects the destiny of Kosovo and Metohija, as the most important security challenge facing Serbia, in two manners: directly and indirectly. In the former case, the European Union is the one that imposes conditions on Serbia related to its accession to the EU, and thus the conditions related to Kosovo and Metohija. This is confirmed by the fact that one whole Chapter is dedicated only to Kosovo. It is Chapter 35. Within the EU, impact of Germany on drafting the contents of the EU document is beyond doubt. This is proved by the fact that the German condition relating to the obligation of concluding a document on normalisation of Serbia - Kosovo relations, was included in the EU document.

The other way in which the European Union affects the destiny of Kosovo is through the High Representative of the Union for Foreign Azffairs and Security Policy who facilitates the Belgrade - Pristina talks. The fact that the High Representative is not just an observer in the talks, but also affects their contents is confirmed by the implementation of the German position expressed in August 2011 on the abolishment of the 'Serbian parallel structures' in Kosovo, which found its 'place' in a significant number of provisions of the Brussels Agreement signed in 2013.

Due to five EU MS that have not recognised the independence of Kosovo and to the need to maintain the unity within the EU, the documents relating to the Kosovo issue need to be as status neutral as possible, which makes them acceptable for Serbia and easier for implementation;

- Despite everything that the USA have done and still do with regard to supporting the independence of Kosovo and Metohija, Serbia tries to cooperate with the USA because it is the most influential country in the international community that has, for two decades now, strongly affected almost all the developments in the area of the Balkans. Without the USA, Kosovo issue cannot be entirely solved, and therefore it is logical that Serbia tries to improve the relations and seeks for an opportunity to promote its positions and protect its interests;

- The support Serbia gets from Russia and China with regard to the manner of tackling the Kosovo issue is consistent, unquestionable and invaluable for Serbia because it is a counter-balance to numerous western countries that have recognised the so called independence of Kosovo and it also strengthens the position of Serbia in international relations, particularly in the United Nations Organisation. For the past several years Serbia has improved its relations with Russia and China even more and consequently it objectively strengthened its position in international relations, including, logically, in respect of tacking the Kosovo issue;

- Serbia is very active in discussions on Kosovo and Metohija and it constantly promotes new initiatives. At the same time, Serbia has managed to convince five states to revoke their recognition of the so called independence of Kosovo, and to prevent Kosovo from becoming a member of numerous international organisations (above all with assistance of Russia and the PR of China, but of numerous other countries as well). Thus, Serbia has shown to some countries it considers 'pillars' of its foreign policy that the Kosovo issue is not a 'done deal'

and that Serbia must be taken into account with regard to the manner of tackling this issue if a permanent solution, peace and security in the region is to be achieved.

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DEMOGRAPHIC CHANGES AS A SECURITY THREAT IN THE PROCESS OF GLOBALIZATION

Lt. Col. Dragan Jevtic, PhD[1]
University of Defense in Belgrade, School of National Defense

Col. Miroslav Talijan, PhD
University of Defense in Belgrade, School of National Defense

Abstract: The rapid growth of population and its lack of uniformity at the local, regional and global level lead to imbalance of demographic and socio-economic opportunities between objects of security and all more obvious deficiencies and uneven distribution of resources (water, food, energy ...) and migration with all implications for security and stability on the international scale.

Demographic changes are related to the problems of the world's population, its economic and social status, growth rate, migration (violent and non-violent) and general quality of life and health. Due to globalization as a process of marking in all segments of global society, demographic problems and trends in different parts of the world (population explosion in Africa, Asia and Latin America, aging of population in Europe, North America and Australia) are getting more and more global reaching uncertain and unpredictable implications at all levels and sectors of the modern concept of security.

Increasing number of transnational economic activities and transnational actors in the process of globalization has influenced the increase in global economic growth, but also swift and uncontrolled consumption of resources of the planet. Continuous pursuit for economic growth as main indicators of the economic and material success has accelerated the use of resources and a tendency of the constant increase of consumption that exceeds the limits of physical and social needs of humans directed toward the excessive material consumerism, hedonism and enjoyment without limits, as well as stimulation of the spread of free markets, democracy and the expansion of the consumerism in the underdeveloped parts of the world.

Global demographic boom, demographic stagnation or decline, and the aging of the population and overgrowth (population age and youth) will have huge impact on human and national security, as well as on the other security sectors. Implications of demographic imbalance, socio-economic factors and the uneven distribution of resources in combination with existing ideology differences, religious and ethnic character, racial hatred and other specific local and regional causes may result in a conflict or conflicts, social unrest, political instability, and increasing danger of internal local and regional conflicts and wars.

Keywords: demographic changes, globalization, security threats.

1 jevta70@ptt.rs

INTRODUCTION

The Report of the Club of Rome[2] made in the early seventies of the 20th century had the title "Limits to Growth". The conclusion of the Report is the great industrial growth is incompatible with the limited and non-renewable resources of the planet. The Report indicates that the nature and social impacts have restrictions on Planet Earth to cope with the demographic explosion and the growing industrial growth. The study of demography in the context of major social changes in the conditions of globalization is therefore very important. Accelerated population growth leads to the creation of a growing number of manufactured risk, and the main reason for that is human knowledge and new technologies which have impact on environment.

The problems with regard to demographic development are most obvious in underdeveloped areas of the world. Increasing number of population in these areas has the potential to create security challenges at the levels of human and national security, and then affect other sectors and levels of security. Culture of mass consumption, as a characteristic of neo-liberal concept of the global economy, creates a greater gap between demands of majority of the world's population and represents one aspect of global disintegration processes.

The relation between increased consumption of natural resources and the increase of population of the planet represents an unfavorable tendency and is expressed through asymmetric relations and opportunities between the developed and underdeveloped parts of the world. In the poor areas of the world, periphery lacks the necessary resources for biological survival of the people. In the developed areas of the world, consumption of resources is excessive and many times above of the basic human needs.

Process of finding a way to accelerate exploitation of resources in underdeveloped regions of the world is ongoing. Such relation in the global economy reflects unequal neocolonial exchange type, resulting in unavoidable negative correlation with the area of accelerated demographic growth.

PROCESS OF DEMOGRAPHIC TRANSITION AND DEMOGRAPHIC TRENDS

The world's population did not exceed 500 million by 1750. Thereafter, it began to grow rapidly. At the end of the 18th century Robert Malthus emphasized the impending danger and possible disaster related to the projection of the population in the future, noting that the population increases geometrically while food production increases arithmetically, thereby actualizing human reproductive rate that exceeds their ability to produce enough food. He predicted the future famine and war for which he was considered to be a misanthrope.

Birth rates in Europe began to decline after 1850 due to increased economic standards and new understanding that children increase economic cost rather than making economic benefit. This theory neglects the social inequalities that exist under capitalism and which increases the abundance of "golden billion" and other hunger redundant population.

According to the theory of demographic transition, population reproduction models indicate and reflect the level of technological development of society. There are four levels of population reproduction: the first stage (pre-industrial-agrarian: birth rates are high because of the economic benefits for the children and lack of birth control); the second stage (early industrial: population growth encouraged high birth rates and decrease mortality rates - many

2 The Club of Rome was made up of industrialists, business advisers and civil activists.

developing countries today are at this stage); third stage (mature industry: the growth of the population is reduced due to the birth rate matching the mortality rates) and fourth level (post industrial, birth rate is on delay and causes stagnation of economic growth rate).[3]

According to the theory of demographic transition[4] planet is likely to be divided into the industrialized rich and non-industrialized poor if it fails from reorientation from production for profit of private capital to redistribution in order to meet needs of the entire population.

There are two opposing tendencies at the global level: 1) low growth in the north (zero population growth, the number of people being held at the same level through reproduction, in post-industrial societies birth rates were reduced, while "not enough people" becomes an issue; 2) high growth in the south, the problem is particularly critical in a number of the poorest countries despite the decline in the birth rate from six to four children per woman and the issue of "redundant population" in over 150 countries These indicators reflect different perspectives of the world's north and south. In most places of the world child mortality is declining, while the birth rate and its control is a challenge for the future.

According to the theory of growth, technology has increased the standard of living and new discoveries make the future more prosperous, but on the other hand, technical progress in the service of production for the accumulation of private profits has caused demographic and environmental problems. The existence of limits to growth therefore requires the application of policies for controlling the growth of several key factors, population, pollution, non-renewable sources in order to avoid environmental degradation and collapse. Critical analysis of demographic and environmental issues means that long-term predictions are based on the extrapolation of current trends with assumption and precondition that their social context remains the same.

The increase of the population of planet is a phenomenon of recent history of human society, expressed in the late 20th and early 21st century, with the tendency of continuity in the 21st century. The rapid increase of the population and uneven growth causes an imbalance in demographic and economic perspectives of the rich and the poor, the scarcity of resources (water, food, energy ..), migration of people and the spread of various diseases (Bajagić, 2012: 51). Population growth will have impact on security in global terms.

Adverse demographic trends are present in different parts of the world. The demographic explosion occurs in Africa, Asia and Latin America, while aging population is in Europe, North America and Australia. Population growth of about one billion at the global level in a decade actualizes the impact on the state and protection of the environment, reducing hunger and poverty, growth of political tensions and conflicts and increasing challenges for future generations (Spasovski & Šantić, 2011: 7). Population growth is associated with a reduction in resources and opportunities for economic development in the future. The trend of population growth will affect the lack of water and basic foodstuffs, hunger, rapid wear of non-renewable energy sources and economic stagnation of a large number of underdeveloped countries and the regions.

Demographic contradictions show rapid population growth in undeveloped countries and regions of the world and stagnation in population and demographic aging in developed countries. Migration from the underdeveloped to the developed countries, where better conditions and prospects for life and work could be found, are more frequent and more intense. Negative demographic aspects aggravate security situation in the globalization process, be-

3 Population and ecology.
4 Demographic transition implies changes that are related to the ratio between birth rate and mortality from the beginning of the 19th century to the present days in industrialized countries. All developing countries are to face demographic transition.

cause the greatest increase in population is still present in the undeveloped countries of the world periphery that are sensitive in relation to the developed countries of the world.

The increase of population during the long history was very small compared to today's growth. In 1650 there were about 500 million people on the planet. By the 20th century, the population increased to over four billion inhabitants. At the end of the 20th century, the population reached 5.7 billion, and in the early 21st century, some 6.5 billion people. Based on certain estimates of demographers and economists, there are no conditions for the survival more than 14 billion people on the planet (Ilić, 2000: 251).

Increasing number of inhabitants according to the estimation made by the UN demographers, indicates that there were one billion people in1804, while after 123 years, the total number reached two billion (1927); after three years there were more than 3 billion (in 1960); after 14 years, the total number was four billion (1974); five years later, it reached 5 billion (1987); 12 years after that, there were 6 billion (1999); in 2011, the total number reached 7 billion (UN, 2005). The last two increases of one billion were reached in 12-year time, while there is prediction for shortening the time period for about 10 years, which indicates the danger of fast reaching the upper limits of endurance of the planet according to the current state of the resource (Saks, 2014: 52). The data are shown in Chart 1.

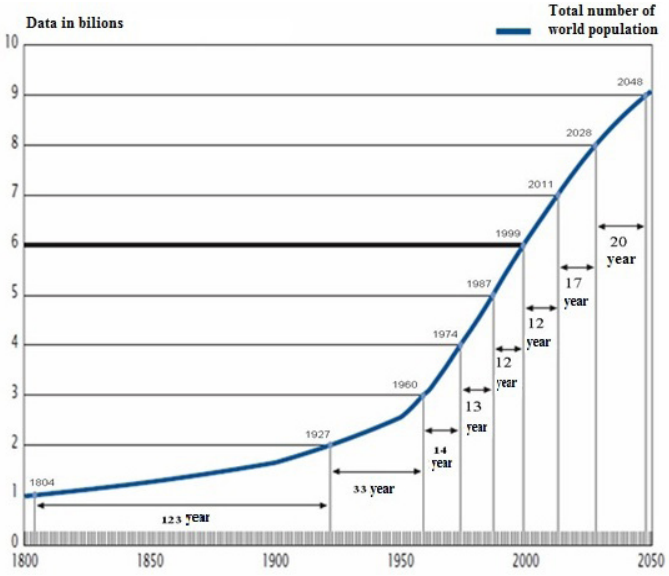


Chart 1 *Earth's population from year 1800 to year 2050* (Ilić, 2000: 251)

Urbanization in the developed world is the result of concentration of a large number of people in the urban areas with restrictions in the facilities, traffic, housing, transportation, sanitary conditions, as well as production of sufficient quantities of food (Saks, 2014: 53). Social situation is further exacerbated by the unfair redistribution of social wealth, which is possessed by the elite, while on the other hand, the growing needs of increased urban population in conditions of limited wealth increase pressure for a more equitable distribution. An accelerated demographic growth will affect the increasing demands for health care, education and employment, and limitations to adequately address these problems will lead to protests, riots and social unrest (Kennedy, 1997: 43).

Globalization has led to economic growth at the global level, while at the same time redistribution of income between regions and countries increased the gap, economic stagnation and poverty. "With the accelerated economic decline, the discontent increases, while the poor social class shows more disappointment than the others, because they want to do everything to maintain the current standard of living, despite the fact that the economic profit is reduced. The dissatisfaction and anger of certain groups could be directed against groups that are considered to be the causes of their misery or who are blamed to benefit from unfair distribution in society" (Bajagić, 2012: 50).

Consumption has been increasing and nowadays represents a problem because of the impact on nature and resources, and this process is noticed with developed as well as underdeveloped countries. Increased consumption of resources affects a large increase in population in the underdeveloped countries, while in the developed countries increasing resource consumption occurs due to higher resource consumption per capita in these countries than in the underdeveloped. Kennedy points out that "the country was attacked from two sides of human beings - excessive requirements and wasteful habits influential population of developed countries, as well as billions of new mouths to feed born in developing countries, which (naturally) tend to increase their own level of consumption" (Kenedi, 1997: 50).

Industries such as agriculture and food industry are becoming increasingly important for securing sufficient quantities of food to meet the needs of growth of the world population. "The high population growth rate has enabled the demographic bomb, the characteristic of the poorest countries in the so-called Third World (Nešković, 2011: 182). Dramatic population growth and demographic transition is evident in the next table.

Table 1. *Demographic transition and Earth's population growth* (Nešković, 2013: 117)

Period	Number of population on Earth
Paleolithic (15000 years B.C.)	3 million
End of Neolithic (2000 years B.C.)	50 million
The beginning of New Era	230 million
Around year 1000. A.D.	275 million
Year 1800.	1 billion
Year 1900.	1,6 billion
Year 1960.	3 billion
Year 1993.	5,5 billion
Year 2003.	6,3 billion
End of year 2011.	7 billion

Population growth in the developed countries in the period from 1970 to 2000 was at a level of about 1% per year, and in the developing countries about 2.5%. The developed countries counted approximately 1.4 billion people (21.7%) in 2000, while the population of the developing countries counted about 5 billion people (78.3%). The largest population growth is in sub-Saharan Africa, parts of the Arabian Peninsula and in the area between Afghanistan and northern India. "According to forecasts of the UN and the French National Institute for Demographic Studies, African population could be quadrupled in a century. It could rise from 800 million in 2000 to 3.6 billion in 2100." By prediction of the French National Institute experts for demographic research for the period shorter than a century, every third citizen on Earth will live in Africa in contrast to present when every seventh man lives there.

The process of globalization is strongly influenced by the increase in transnational economic activities and the number of transnational actors, thus increasing global economic growth and a swift uncontrolled spreading of the world's resources. It becomes more problematic tendency of constant increase economic growth as an indicator of economic and financial success in terms of the limited resources of the planet. Such efforts accelerated consumption of water resources and the continued growth of consumption far exceeding the limits of physical and social needs of the people seeking out unlimited material consumerism, hedonism and enjoyment. Promotion of consumer culture on a global scale aims at further expanding the boundaries of consumer companies through the spread of free markets and liberal institutions to further increase spending.

The biggest and most important discoveries are made by people who are 30 to 44 years old. Thus, the process of demographic aging is disadvantageous as it negatively affects scientific and technological progress. Compared to the negative European demographic trends, the United States have balanced demographic situation because immigration is its secret weapon. "Immigration gives to America peculiarities that are rarely linked to a rich country – hunger and energy. As countries are getting richer, the need for advance and success is weakening. For advanced industrial countries whose population already lives in comfort, satisfied and less inclined to hard work, bad demographic picture is a deadly disease" (Zakarija, 2009: 195-196.).

	Number of population (in billions)					Average annual growth rate		
	1950.	2000.	2011.	2050	2100.	1950-2000.	2000-2050.	2050-2100.
World	2.5	6.1	7	9.3	10.1	1.8	0.8	0.2
Africa	0.2	0.8	1	2.2	3.6	2.5	2	1
Asia	1.4	3.7	4.2	5.1	4.6	1.9	0.6	-0.2
Europe	0.5	0.7	0.7	0.7	0.7	0.6	0	-0.1
L. America	0.2	0.5	0.6	0.8	0.7	2.3	0.7	-0.2
N. America	0.2	0.3	0.3	0.4	0.5	1.2	0.7	0.3

Table 2 *Number of population and growth rates per continent from 1950 to 2100* (Bloom, 2011)

Global population explosion will make its impact primarily on human and national security, and further to other levels of security. Demographic aging is threatening the West, primarily due to the reduction in the number of young people and an increase in the average age of the population and influence decrease of the capacity of military force. Aging will leave behind and other social impacts. Problems with pension system will arise, growing number of unemployed and elderly people will provide for a reduced number of employees, while the smaller number of working-age people decrease the progress in science and technology, further aging of the population will reduce savings in favor of consumption and reduce the rate of national savings and investment.

DEMOGRAPHIC CHANGES AND CHALLENGES OF GLOBALIZATION

Demographic surge of young people in the developing world will increase the number of potential legal paramilitary and military forces, regardless of whether they are military, terrorist or other categories of destructive groups. The behavior of young people in the developing world determines their socio-economic position, while poverty and lack of perspective activate their sense of injustice. Demographic growth will encourage social unrest and polit-

ical instability and increase the ability of local and regional conflicts and wars. In countries and regions with rapid population growth, subdued social and economic expectations are present. Contradictions in ideological orientation, ethnic, religious or racial hatred and other local specific causes can lead to the formation of civil or religious wars. Social situation which, among other factors, affects the demographic growth will significantly contribute to creating the conditions and circumstances that lead to the escalation of violence and the demographic growth will increase social tension and conflict potential.

Eurostat scenario EУ-25 (in thousands)	**2005-2050**	**2005-2010**	**2010-2030**	**2030-2050**
Total population	**-2.1% (-9642)**	**+1.2% (+5444)**	**+1.1% (+4980)**	**-4.3% (-20066)**
Children (0-14)	-19.4% (-14415)	-3.2% (-2391)	-8.9% (-6411)	-8.6% (-5612)
Young (14-24)	-25.0% (-14441)	-4.3% (-2488)	-12.3% (-6815)	-10.6% (-5139)
Young adults (25-39)	-25.8% (-25683)	-4.1% (-4037)	-16.0% (-15271)	-8.0% (-6375)
Adults (40-54)	-19.5% (+19125)	+4.2% (+4170)	-10.0% (+10267)	-14.1% (-13027)
Older employed (55-64)	+8.7% (+4538)	+9.6% (+5024)	+15.5% (+8832)	-14.1% (+9318)
Old (65-79)	+44.1% (+25458)	+3.4% (+1938)	+37.4% (+22301)	+1.5% (+1219)
Very old (80+)	+180.5% (+34026)	+17.1% (+3229)	+57.1% (+12610)	+52.4% (18187)

Table 3 *Demographic aging of Europe* (Jevtić, 2017: 320)

Demographic problems include demographic trends in the developed and developing countries where the allocation of resources are concentrated in the developed countries by the population over 65 years of age, while in the developing countries it is concentrated towards the younger population and children. Developed countries in the future may have a problem with regard to consumer spending by people older than 65 years of age (dependent population) who will be numerous and represent a "brake on overall output growth, weakening companies with a higher proportion of working age people and a larger investment of resources in production". In countries with more old people there will be less crime rates, lower propensity to war, and also reduced potential for recruiting the army. According to some estimation made, there will be a further increase in the population over 65 years of age (Todorović, 2017).

Demographic changes expressed through demographic growth "as caused by a low level of education and very limited standard of living are the basis for the emergence of social instability, political frustration and social upheaval" and their wider implications may be a prelude to a social explosion of global proportions resulting from the negative effects on culminating problems of economic growth and development of individual countries, regions and the world (Stojanović, 2009: 125).

The underdeveloped countries have the worst position due to lack of food consumer products for the maintenance of basic livelihood and important resources. Demographic problems together with other problems of economic and social development and social weaknesses are the basis for creating ethnic and religious tensions, terrorism and other violent acts and

outstanding intrastate and interstate issues with a potential further escalation and spread to wider regional areas (Stojanović, 2009: 125).

Worsening of demographic situation by increasing the number of people who are over 65 years of age and prolonged life of people in the developed countries causes different problems than in the developing countries especially regarding pension and health insurance, while low birthrate problem increases the disproportion between the labor force and reduce the number of the employed population and the increasing number of pensioners. By 2030, Europe will have been largely in the process of demographic aging, in which the number of people older than 65 will be twice as high as the number of children under the age of 15. In Western Europe there will be worsening of the working-age and old-age ratio will have been reflected through a change in that ratio from 3.8:1 to 2.4:1 by 2030., while the change in the US will have been from 5.4:1 to 3.1:1. In the future, Europe could decrease this negative trend if it made balance by the increase of inflow and acceptance of more foreign immigrants (Zakarija, 2011: 195).

Phenomena	Policies that promote growth, but:
Growth of unemployed	Production falls proportionally to the growth of employees (unemployment, job insecurity and fight for job)
Increase in number of disempowered	Common and human rights are suppressed (political pressure and the absence of democracy)
Growth of cruelty	There is a lack of investment in cities and fair distribution of goods (poverty and low income)
Losing awareness of origins	Cultural diversity is marginalized or eliminated (homogenization)
Strengthening awareness of the uncertain future	Decrease or destruction of the environment

Table 4. *Globalization and negative demographic aspects* (Mijalković, 2011: 51)

In the second half of the 20th century, the largest demographic explosion occurred, and such a demographic trend will also be a characteristic of the first half of the 21st century. "Demographic explosion is an expression that indicates a huge population growth in a country, a region or a continent. Today, Africa is predominant in that sense, and a significant increase in population is characteristic of some Asian and Latin American countries. In 1950, only 9% of the world's population, or 244 million, lived in Africa, while today there are a billion and two hundred million people" (Talijan at al., 2017: 155). In the underdeveloped countries and regions of the world, the highest population growth rates are recorded in Africa, Asia and Latin America, with the lowest rates of growth present in Europe, North America, Australia, New Zealand and Japan (Jevtić, 2017: 322).

Globalization has led to a new division of the countries of the world along the lines of the poor East and the rich West in addition to the already traditional division into the countries of the poor South and the rich North. "Economic inequality is the cause and consequence of the globalization of the unequal power of countries", while "the imbalance in investment in economic development, the negative consequences of trade liberalization, and the intensified interdependence of national economies lead the underdeveloped countries into an even more subordinate position" (Bajagić, 2012: 48). There are a number of convincing views predicating that global economic disproportion will intensify demographic challenges in the future.

The process of globalization has influenced the faster transmission and spread of certain types of diseases throughout the entire planet. The demographic trend of an increase in the number of inhabitants associated with poverty and environmental problems produces pollution, the spread of infectious diseases and the impact on the health of the population. The WHO points out that about a quarter of the world's population suffers from infectious chronic

illnesses, while around 20 million die of infectious diseases. Some old diseases, such as plague and malaria, have appeared again in India, cholera in Latin America, while India, Brazil, Venezuela and Australia have been affected by yellow fever. According to estimates, tuberculosis, malaria and AIDS will have been the causes of most deaths cases in the world by 2020. In southern, southeastern and eastern Asia, the spread of the AIDS virus has been noted with the tendency that the further increase in the number of infected in these regions exceeds the number of people infected in Africa, while dysentery, diphtheria, cholera, hepatitis B and C have appeared in the territory of the former USSR and Eastern Europe, due to the weakening of the health care system and economic problems (Bajagić, 2012: 56). The inflow of migrants to Western Europe increases the transmission of infectious diseases such as AIDS, tuberculosis, hepatitis B and C, and other transmissible diseases.

In the field of culture, the process of globalization has spurred the expansion of the value of mass consumer culture and the process of global equilibrium from the culture of nutrition and education to the very lifestyle and influenced the demographic population. In the world periphery, primarily in the undeveloped part of the world, the globalization of culture takes forms of accepting cultural models of a mass consumer society, which is why cultural dependencies are formed. Expanding the value of mass consumer culture to wider global areas increases demographic challenges and risks.

At the center of consumer culture, hedonism emphasizes the cultural values of capitalism and consumption as the main business and entertainment. The new free-market economic system has suppressed traditional value systems and caused their collapse. Earlier, the economic system was absorbed into the social system, and now it is the other way round, society and the social system are a secondary phenomenon of economic life. "Modern capitalist society defines desires rather than needs, they are psychological rather than biological in nature, and basically they are unlimited." Society is no longer seen as a group of people with a common goal, but as a set of individuals whose goal is their own satisfaction (Bel, 1996: 35).

The expansion of consumer culture and the achievement of economic priorities in relation to other areas of social life is the victory of economic values in relation to social. Societies with the dominant role of the market and economy become unstable due to the inability to meet needs that are not limited to biological but psychological factors, and in production there are demands for increasing sales of different types of goods. Insatiability of the needs and desires expressed in the production and sale of goods can indicate the existence of social and moral pathology. "Limitless desires insatiable by definition and insatiability is for a reason, considered a sick sign because nothing prevents them, they always endlessly exceed the resources they have, so nothing can calm them down" (Durkheim, 2003: 247).

The greatest challenges of the 21st century will be demographic problems related to the increasing need to maintain the livelihood of a large number of people and uncertain prospects for their future. Multiple concurrent diverse interconnected problems can increase mutual cumulative effect and lead to the emergence of complex socio-economic and political demands for governments and global order institutions in order to find sustainable solutions. "The greatest test for human society in the 21st century will be to find an effective solution for three quarters of the poorest humanity: rising malnutrition, hunger, resource consumption, unrests, forced migration and armed conflicts - accidents that can also hit rich countries, although not so directly" (Mandelbaum, 2004: 378).

Migration can increasingly be seen as a demoralized disorder associated with certain causes. In contemporary conditions in the process of globalization in the second decade of the 21st century, they are beginning to pose a problem for the developed countries of the North. The arrival of immigrants to other countries requires a redistribution of the limited resources of those countries that are constantly in the cycles of economic crises as a problem in the

functioning of neoliberal capitalism. With the arrival of migrants, unemployment increases in developed countries and the need for new jobs increases as well, while on the other hand, the problem for the majority of national population is created, because the jobs are, among other things, taken by migrants. In addition, the phobias of national states are increasing as well as the fear of risks such as the reduction of border control and sovereignty of the countries, and the fear of religious and cultural differences, the loss of certain values and part of their own habits. In the case of introducing more stringent measures in terms of controlling inflows, restrictions on the entry or exit of migrants by States, as potential scenarios there can be emergencies and a migrant crisis with greater security implications depending on the size of the crisis and the number of migrants (Michael & Chandrani, 1998: 68).

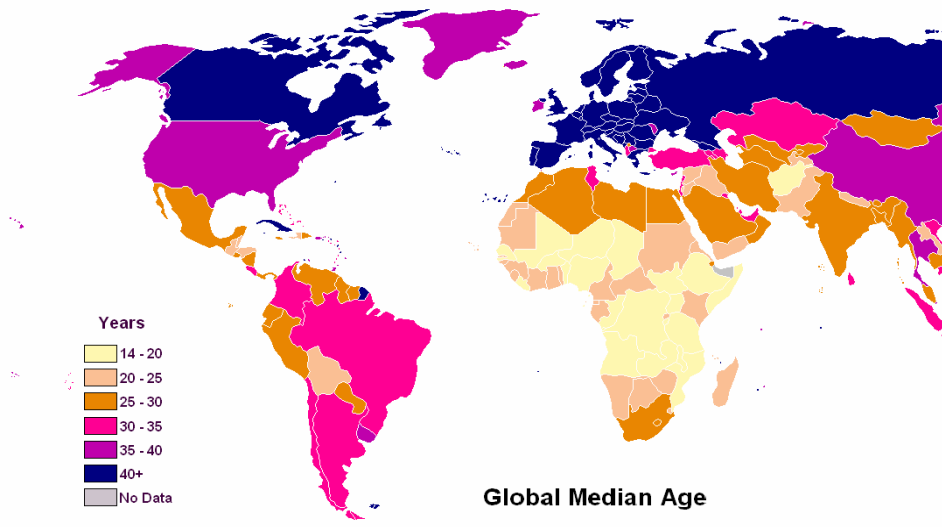


Figure 1. *Global Median Age* [5]

The movement of the population from villages to cities in the processes of industrialization and urbanization is a migration. These processes have significantly been encouraged by the process of globalization as a wider integration process. Due to the accumulation of population in cities, large population density with scarcity of living space and deterioration of economic and social conditions for life arise.

The situation of migrants in cities is becoming more and more difficult because of reduced employment opportunities and the ever-worsening material conditions for people's lives in line with the growing spectrum of their needs. There is a worsening of the living conditions of people in the cities where they moved to in relation to the conditions in the countryside from where they came from and where the natural resources for physical survival are at hand.

Migrations of people from rural areas to large cities in the underdeveloped countries due to ubiquitous technical and technological and other social changes create an uncontrolled influx of people. "Large cities and megalopolises, which are particularly characteristic of Latin America and Asia, turn into a chaotic environment of poor, hungry, disordered and sick people living on the borders of social endurance because of the accelerated influx of large numbers of people. Explosive population growth with the reduction of resources in the underdeveloped and developing countries, in addition to the threat of internal migration and various

5 http://en.wikipedia.org/wiki/Demographics_of_the_world, 20.05.2017.

non-violent and violent conflicts, has led to mass migrations to other countries and regions. The most important reasons for large migration of people are economic decline and environmental degradation, followed by cultural, ethnic and religious antagonisms and conflicts and political disagreements, instability and wars", (Stojanović, 2009: 127).

Movement of people between countries is another form of migration, which most often happens in search of better living conditions. Since the mid-20th century, a large number of people from different parts of Europe have sought to go to the countries of western and central Europe for finding work and better living prospects. The structure of the occupation of people who left mostly was of a lower educational and professional level for which there was a need in labor markets, which allowed integration into the economic and political system of those countries. Migrations in other parts of the world have occurred because approximately similar reasons, primarily of material nature (North America and Australia). The relocation of people was mainly to areas where there were more resources. Countries with diverse and heterogeneous population with multiple ethnic communities due to different levels of population growth in individual communities may have demographic unevenness with implications on social balance and political stability. If one or more ethnic communities achieve more increased birthrate than the ethnic community which makes the majority in the country, there is a danger of changing the demographic structure in which some ethnic communities will prevail over the domicile population.

Demographic problems are largely linked to environmental problems and have an impact on them in such a way that a further increase in the number of people is not sustainable with the current trend of maintaining and further raising of the level of consumption and with both media and institutionally encouraged culture of the consumer society. The globalization and neo-liberal model seeks to expand the value of consumer and consumer-based culture. The process of globalization at this stage of demographic growth, the growth of economic activities, the consumption of resources, and of the redistribution modality that increases inequalities is a complex problem that requires global consensus since the consequences go beyond national and regional frameworks (Jevtić, 2017: 396).

Demographic boom will also have its impact on the environment. Increasing the number of people with the current level of consumption and the dominant culture of the consumer society promoted by globalization and the neoliberal model and with the continuous expansion and acceptance of Western civilization values will also stimulate and intensify the contradictions of sustainable development.

Acceleration of the globalization process in relation to the current level of population density at this stage of demographic growth, the growth of economic activities and resource consumption will be a complex problem and will require scientific and operational solutions due to different demographic challenges that produce security problems at the national, regional and global levels.

CONCLUSION

Accelerating the increase in the number of inhabitants in the modern age and the degree of exploitation of the planet's resources in view of the achieved standards of constant and increasing consumption created by the globally dominant model of consumer society as a prerequisite for the survival and development of neo-liberalism as an economic and political model of the development of states and societies and the form of capitalism, poses the question of survival of the future generations of people since the resources used for the most part are non-renewable, but whose excessive and inadequate use disturbs the environment in which people live.

Another problem is the imbalance of demographic and socio-economic opportunities in the international system between actors, alliances, regions, states, groups and individuals and other non-state actors in the increasingly obvious difference in force and power and uneven resource allocation (water, food, ...), of which the main indicators of imbalance is migration with all its consequences on security and stability in narrower or wider national and regional areas with impact on the global level.

Demographic trends and other indicators related to demographic changes that point to security threats in the process of globalization are as follows:

- the rate of growth of the world's total population and the rate of growth in areas with scarce resources,

- the economic and social status of the population of individual countries in certain parts of the world in relation to the needs of maintaining and developing the demographic factor,

- migration (violent and non-violent) as indicators of socio-economic, political, cultural and other types of imbalance in the global world system,

- demographic explosion in Africa, Asia and Latin America and demographic aging in Europe, North America and Australia,

- accelerated consumption of the planet's resources in relation to accelerated demographic growth in global terms,

- the tendency towards widening consumer expansion and encouraging models that will support this expansion in the underdeveloped parts of the world, regardless of the further spread of negative consequences for certain societies and the sustainability and development of the demographic factor,

- the tendency of a constant increase in the consumption beyond the limits of people's physical and social needs,

- the demographic expansion of the population and the global awakening of political awareness,

- increase of the opposition of ideological, religious, ethnic, racial or some other characters on the basis of polarization to the winners and losers of globalization,

- increase of the possibility of confrontation, conflict, political instability, social unrest and danger from internal, local or regional conflicts and wars,

- technical progress in the function of accumulation of private profit is partly one of the causes of demographic and environmental problems,

- an unjust distribution of social wealth concentrated with the elite reduces the possibilities of demographic development,

- globalization has at the same time produced world economic growth, while the redistribution of revenue between regions and countries has increased the gap, economic stagnation and poverty, which is a factor in slowing global demographic development.

- "The country is attacked from two sides by human beings - by excessive demands and wasteful habits of the influential population of developed countries, as well as by the billions of new hungry mouths born in developing countries that (naturally) tend to increase their own level of consumption" (Kennedy, 1997: 50).

- by exacerbating the economic crisis of capitalism, which are inevitable, the poor layers of society show greater disappointment than the others, while elites take all measures to maintain the existing standard of living, despite the fact that economic profit is being reduced.

- fostering demographic growth increases demands for health care, education, employment and other social services, and the inability to adequately address these problems can lead to social unrest, rebellion and various forms of protest.

- demographic aging, primarily in the countries of Western Europe, will burden the pension system reducing savings in favor of consumption and the rate of national savings and investment, and advances in science and technology.

- demographic growth of young people in the underdeveloped world will increase paramilitary and military forces.

The problems of demographic growth and development in combination with other problems of socio-economic and social development are the basis for ideological, national, ethnic, religious and other contradictions and conflicts, terrorist and other types of violent acts and unresolved intra-state and interstate problems with the potential for further escalation in wider regional and global areas. "Ecological problems in the interaction with the demographic and socioeconomic problems have a global character and it is therefore necessary to create an institutional framework to solve them at the global level. By the action of all actors it is possible to solve these problems on the basis of the same principles and goals", (Jevtić at al., 2018: 420).

The process of globalization and the neoliberal economic and political model of state development and the form of contemporary capitalism as a principle in the conduct of states in international economic and political relations requires the reduction of the state's regulatory role in the socioeconomic sphere and other radical reforms, regardless of the degree of its development and the specifics of state-society, which at global level has led to an increase in inequality at all levels. "As far as the scale of global inequality is concerned, it is strikingly clear from Oxfam's (humanitarian organization) data that 1% of the richest people in the world in 2016 had owned more wealth than 99% of the rest of the world's population with the tendency to rapidly widen the gap between the richest and the rest of the world", (Jevtić, 2017: 396).

This approach in international economic and political relations prevents the resolution of the problems of demographic growth and development at the global level and is in the interest of individual centers of power. Due to increased contradictions, there is a need for problems of demographic development and growth projections to be reviewed within the broadest multilateral forum within the United Nations Organization in which all countries of the world will have the right to decide on issues and problems in the global community and have an impact on their fate, thereby increase the opportunities for solving the problems of demographic development, while neglecting that problem will cause the greatest damage in the future and the danger to security exactly for the most developed countries.

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ORGANISATIONAL DEVIANCE OF THE STATE AND NATURAL DISASTERS

Jasmina Gacic, PhD[1]
Milos Tomic
Faculty of Security Studies, University of Belgrade

Abstract: Natural disasters as a non-military challenge, risk or threat are a reality faced by many states around the world with increasing frequency. The General Assembly of the United Nations designated the 1990s as the International Decade for Natural Disaster Reduction. From the late 1980s onwards, numerous analysts observed that there was a growing trend in the event coefficient and that economic and psychosocial consequences were becoming more devastating because their intensity was increasing. Many indicators suggest that the second half of the 20th century was characterized by acceleration in this process, which became even more apparent after 1980. Data show that 78 major natural disasters affected 80 million people and caused ten billion dollars in damage in 1970. In 2004, the database of the Centre for Research on the Epidemiology of Disasters (CRED) recorded 384 disasters, which affected 200 million people and caused fifty billion dollars in damage. In these circumstances, it is obviously exceedingly difficult for the state and society to function efficiently. The organizational deviance of the state, which manifests itself as the increasingly prominent systemic corruption of relevant government bodies, contributes to the rise in negative consequences of natural disasters and to the greater vulnerability of a society. Apart from physical weakness and exposure i.e. the susceptibility of the core or wider community to extreme natural hazards, the extent of vulnerability of a community to natural disasters also stems from socioeconomic weakness, which involves relative weaknesses and shortcomings of a community in a socio-economic sense. Vulnerability is also marked by a lack of flexibility, manifested as the incapability and limitations of a society to mobilize its existing capacities (a disproportionate degree of participation of people in the making of certain political decisions). In some developing countries, providing assistance during and after natural disasters is characterized by various suspicious activities of persons in charge of receiving and distributing the funds for the recovery of human and material resources. Developed democratic countries are not immune to the negative trend of increasingly frequent financial irregularities in natural disasters either, as has been confirmed by recent natural disasters in the United States. This paper presents the most serious cases of abuse of authority in emergencies.

Keywords: natural disasters, systemic corruption, vulnerability of a community, government efficiency, abuse of authority.

1 jgacic@sezampro.rs

INTRODUCTION

In December 1989, the General Assembly of the United Nations proclaimed the 1990s the "International Decade for Natural Disaster Reduction". The objectives are precisely defined: "Reduce by joint international action, especially in developing countries, the loss of human lives, property damage, social and economic disorders caused by natural disasters that are continuously rising, such as earthquakes, cyclones, tsunamis, floods, landslides, volcanic eruptions, fires caused by natural causes, drought, desertification, and other disasters of natural origin". Since the late 1980s, numerous analysts have observed that the event coefficient tends to increase, but that economic and psychosocial consequences are becoming more devastating because their intensity is increasing. Many indicators suggest that the second half of the 20th century is characterized by acceleration in this process, which becomes even more apparent after 1980. The data show that 78 major natural disasters affected 80 million people and caused ten billion dollars in damage in 1970. In 2004, the database of the Centre for Research on the Epidemiology of Disasters (CRED) recorded 384 disasters, which affected 200 million people and caused fifty billion dollars in damage. The reason for disaster reduction is therefore quite clear, and the risk of natural disasters concerns every man, every society, and every nation. Natural disasters cause the slowdown in development, their occurrence in one region can have an impact on the realization of risks in another, and the opposite. Observing the role of the state in the conditions of natural disasters is conditioned first of all by the perception of the harmful consequences which inevitably follow these catastrophes. Natural disasters are often analyzed as isolated physical phenomena, so the role of the state is usually limited by its obligation to provide assistance (San Antonio, 2011). One consequence of this view is that the role of the state in the disaster design is considerably reduced and becomes the unique standard by which government efficiency is measured (Green & Ward, 2004:54). When the state's obligations are narrowly defined, especially during times of crisis or emergency, then there is the possibility of getting rid of the state's responsibility for ensuring the daily safety of citizens. Namely, the state policy and practice contributed to the creation of vulnerability conditions (e.g. poverty and lack of social security) that prevent and neglect the ability of people to prepare, react and recover from the consequences of natural disasters.) Modern civilization is generally prone to catastrophes that often surprise even the current problem fighters. The way in which it deals with these disasters is governed by the rule of action after something bad has already happened and probably has already gone out of control. The restless spirit of modernization takes care to keep the number of these bad events growing, and they sometimes multiply by themselves. In the meantime, the consequences of natural disasters such as loss of life, destruction of infrastructure and human rights violations are attributed to physical hazards while on the other hand, the crimes of the state, which also contribute to human suffering, often remain unnoticed (San Antonio, 2011). In this context, a study by Francis Fukuyama, *State-Building: Governance and World Order in the 21st century*, is very interesting, pointing out the importance of the quality of work the state has left to do. The part of the study and research relating to smaller, transitional countries in which the state loses capacity, which has very bad consequences for the development and well-being of the entire society, is very inspiring (Fukuyama, 2007; Nye, 2004). For the purposes of this paper, the types of organizational deviance of the state developed by Green & Ward (2004), relevant to understanding natural disasters as a state crime, will be used.

THEORETICAL CONCEPTUALIZATION OF NATURAL DISASTERS

Scientific operationalization of the concept of a natural disaster is conditioned by the differential theoretical approaches of the researchers or the objectives of concrete scientific research work. Green and Ward, 2004, consider that natural disasters should be distinguished from disasters that are the product of direct human intervention, citing the following examples: Chemical accident in Bhopal (India), nuclear disaster in Chernobyl, accident at the railway line in Southall, Clapham and Paddington (UK), a fire on the oil platform of the Piper Alpha.

The International Federation of Red Cross and Red Crescent Societies (IFRC) defines disasters as a sudden, unfortunate event that seriously impairs the functioning of the community or society and causes human, material, economic or environmental losses that go beyond the ability of the community or society to master them with the help of their own resources. Although often caused by nature, catastrophes may also have an anthropogenic origin (IFRC, 2018). That is the combination of hazard, vulnerability, and inability to reduce potential negative consequences of risk results in a catastrophe (IFRC, 2018). The United Nations determines a disaster as a situation or unforeseen sudden event that causes enormous damage, destruction and human suffering where local capacities are not sufficient for an adequate response which requires assistance at the national or international level (*United Nations Statistics Division* - UNSD, 2018). Typology of natural disasters according to this organization includes: floods, natural disasters of geological origin (volcanic eruptions, earthquakes and landslides), natural catastrophes of climatic or meteorological origin (droughts, cold waves, hot waves, avalanches, tsunamis or tidal waves, storm winds cyclones, hurricanes, tropical storms, tornadoes, typhoons and winter storms), forest fires, infections caused by insects, cholera epidemics, diarrhea, meningitis, tropical fever and malaria (Ibid., 2018).

The United Nations International Strategy for Disaster Reduction (ISDR) in its preliminary document, *Living with Risk: A global review of disaster reduction initiatives,* presents several key guidelines for understanding natural disasters. Accordingly, ISDR defines the following disaster-related and disaster response terms:

- Disaster: A serious disruption of the functioning of a community or society causing widespread human, material, economic or environmental losses that exceed the ability of the affected community/society to cope using its own resources.
- Hazard: A potentially damaging physical event, phenomenon, or human activity which may cause loss of life or injury, property damage, social or economic disruption or environmental degradation.
- Vulnerability: A set of conditions and processes resulting from physical, social, economic, and environmental factors, which increase the susceptibility of a community to the impact of hazards.
- Coping Capabilities/Capacity: The manner in which people and organizations use existing resources to achieve various beneficial ends during unusual, abnormal, and adverse conditions of a disaster event or process.
- Risk: The probability of harmful consequences, or expected loss (of lives, people injured, livelihoods, economic activity disrupted, or environment damaged) resulting from the interaction between natural or human-induced hazards and vulnerable/capable conditions (UNISDR 2002:310-316).

Susman and associates (Susman et al., 1983) introduce a political component of the defi-

nition of disasters by focusing on the notion of vulnerable groups, that is, in their opinion, without people there cannot be a disaster. The authors also state that the disaster is defined as a form of confrontation between extreme physical events and the vulnerable (endangered) human populations (Ibid., 1983). Quarantelli emphasizes and explains the paradigm of the study of natural disasters rooted in two basic ideas: the first is that disasters are inherent social phenomena and the second that they are rooted in the social structure and reflect the processes of social change (Quarantelli, 2005). Since 2000, disaster studies have been experiencing real expansion and natural catastrophes are beginning to be seen as a result of mixing the natural and geographic system with the human system. The capacity of people to minimize the negative consequences of a disaster depends on human adaptation to natural phenomena including existing building codes, land use rules and critical infrastructure design (Cvetković, 2017). The consequences of disasters, according to the British sociologist Anthony Giddens, originate from organized knowledge, not from natural coincidence. Recognizing the existence of a risk, a disaster does not only mean accepting the possibility that things can go wrong, but also that this possibility can be removed. In other words, the natural disaster is only potentially catastrophic, since primarily its anthropic characteristics give it this status. It is understood as such because of the consequences it causes to the functioning of human societies. Reducing disaster risk includes a range of activities that are undertaken to reduce vulnerability and disaster consequences across the entire society, to avoid or to limit the harmful impact of hazards, in the broad context of sustainable development. When it is understood that there is a difference between "natural hazards" and "disasters", then we can claim that all disasters are "caused by man", or caused by our actions such as rapid urbanization, failure to comply with construction laws, environmental degradation, climate change, but also systemic corruption that contributes to reducing the capacity of the state to respond to the severity of its consequences.

SYSTEMIC CORRUPTION

Corruption as a security phenomenon is not a new phenomenon characteristic of modern conditions of the development of the political and economic foundations of society. Velkova and Georgievski (2004), state that corruption is a widespread problem, especially in countries with weak state administration, inefficient institutions and poor implementation of legal norms. Because of the universality of corruption in the scientific literature, there is no consensus on a single definition of corruption. Accordingly, for the purposes of this paper, the definition of corruption proposed by the World Bank will be used, which reads: *Corruption represents offering, giving, receiving or seeking directly or indirectly any value for unlawful influence on another person for the purpose of doing business* (World Bank, 2018).

There are two types of public corruption: grand and petty corruption (Adeyeye, 2012:43). The term "grand" does not signify the amount of money that is realized by corruptive actions but the grandeur of the position in which corruption appears (Heskett, 2013:26). Additionally, the term grand in the daily use is replaced by the term "political", which directly suggests that this kind of corruption involves political parties, political campaigns or political leaders who abuse the trust of their voters (Ibid., 2013:26). Thus, grand corruption involves the abuse of public authority carried out by state heads, ministers and other senior officials in order to gain private monetary gain (Adeyeye, 2012). Unlike grand or political corruption, "petty" corruption (also known as administrative or bureaucratic corruption) appears in those places where bureaucratic services are in direct contact with citizens (Heskett, 2013: 26). By nature, petty corruption usually involves small economic amounts in contrast to grand corruption, but in spite of this, this kind of corruption has a negative impact on the middle and lower

classes of a society with low personal incomes. The negative consequences of corruption at social value are reinforced by the fact that the lower strata are forced to give bribe to public officials in the field of medicine, education or the police. In essence, bribes allow public officials to carry out their work and thus provide some citizens with a privileged position in relation to others (U4.*Anti-Corruption Resource Center* - U4).

Grand and petty corruption can be systemic and sporadic. Corruption is systemic in cases where it is integrated with the essential aspects of the economic, political and social system, that is, most of the institutions and state procedures (processes) are led by dominantly corrupted individuals and groups, with a certain number of people not having an adequate alternative to dealing with corrupt officials (U4, 2018). On the other hand, sporadic corruption is not realized on a regular basis and does not pose a direct threat to the community because of the fact that a corrupt individual is using the opportunity to improve his personal position by illegal means (Ibid., 2018).

According to the *World Disaster Report* from 2014, the problem of corruption has become increasingly common in the last few years. Namely, disaster officials point out that huge amounts of money intended for disaster relief are being converted to private funds or invested in the construction of unsafe buildings, mainly by bribing the main inspectors in charge of issuing the building permits (IFRC, 2014). Numerous examples of political corruption in the event of natural disasters confirm the seriousness of organizational deviation of countries around the world. Barber and Schweithelm (2000) describe a state crime that is considered responsible for fires in Indonesia in 1997 and 1998. Namely, the authors claim that in this period the policy and practice of using forest resources and land directly and inevitably contributed to the occurrence of forest fires. The corrupt regime of President Muhammad Suharto significantly promoted the development of a corrupt culture of "chronic capitalism" that puts private interests ahead of public interest, the environment and the rule of law (Ibid., 2000). Officials of the Suharto's regime and their close associates treated Indonesia's forest resources as their personal property for more than 30 years, destroying valuable trees through negligent and destructive cutting to create plantations for the production of palm oil. In addition, as a direct consequence of this type of behavior of state officials, there is a large number of endangered traditional communities across the archipelago that are directly dependent on forests (Ibid., 2000).

A Sri Lanka-based corruption investigation analysis conducted by the Humanitarian Policy Group in 2008 concluded that a huge amount of humanitarian aid, which arrived after the tsunami, increased the risk of corruption. Namely, many politicians at national, provincial and local levels, as well as other non-state actors, used a huge resource inflow as an opportunity to increase their political capital (in selected units) and personal enrichment (Elhawary and Aheeyar, 2008).

The presence of systemic corruption significantly threatens to reduce the risk of disasters in countries that are endangered by natural disasters. The Transparency International Organization states that in 1977, the Federal Government's flood relief commission in Pakistan embezzled between 60% and 70% of the total amount of 640 million pounds (Hunt, 2010). The consequences of this type of embezzlement have contributed to the failure to build vital flood defense facilities, which can be partly considered responsible for the loss of 1600 people killed during the 2010 flood in Pakistan (Ibid., 2010).

Developed countries in conditions of natural disasters are also endangered by various financial malversations, and the presence of public corruption during extraordinary conditions of functioning of the state and society is high. Leeson and Sobel (2008) used panel data for the period from 1990 to 1999 to investigate public corruption in the US during natural disasters. The results of their research show that some U.S. regions such as the Gulf Coast are

significantly corrupted due to the increased frequency of natural disasters in the area (Ibid., 2008). This example is certainly not the only one in one of the most developed countries in the world. When Hurricane Katrina struck the southern coast of the United States in 2005, it may not have looked picky, it struck rich and poor with the same power - and again, this obviously natural danger did not appear similarly "natural" to all her victims. Although the hurricane itself was not a human product, its consequences for humans obviously were. As concluded by Calvin O. Butts, a priest of the Ethiopian Baptist Church in Harlem... the affected population included mostly poor people. Or, as the New York Times correspondent David Gonzalez said... "in the days when the neighborhoods and cities along the coast of the bay were wiped off by winds and water, the conviction grew that the race and class were inevitable markers for those who pulled out and those who got stuck (Bauman, 2010). Just as in developing countries the failure of the rural development policy has become crystal clear in times of natural disasters such as floods and droughts, so many national leaders have said that federal policies have stranded some of the poorest US cities." Martin Espada, English professor at the University of Massachusetts, observes: "Usually we are thinking about natural disasters as unbiased and random occurrences. But it turns out that the poor are always in danger. It's dangerous to be poor, it's dangerous to be black, it's dangerous to be Latino." As he suggests, the categories that are particularly at risk are largely overlapping. Many of the poor are among the black and Latin American populations. Two-thirds of New Orleans population was black, and more than a quarter of them lived in poverty in the part of the city wiped out by floods. No one can be sure to what extent this circumstance influenced the federal authorities while designating the state budget for the overhaul of the disturbingly inadequate city defense system against floods. The federal administration has reduced the part of the budget dedicated to maintaining the flood defense system by 50 percent. Suddenly, natural disasters seem to act as an extremely moral evil. That catastrophe mostly reflected on people who, even before Katrina struck, had already fallen out of the order, the outcasts of modernization, the victims of order and economic progress, two distinctly human endeavors. Before they found themselves at the very bottom of the priority list of authorities responsible for the safety of citizens, they had already been pushed to the margins of attention (and political plans) of the authorities. Moreover, the situation in August and November 1999 appears equally dramatic, when two devastating earthquakes hit the Marmara and Düzce region in the northwest of Turkey. This natural hazard caused the death of about 42,000 people, with 300,000 houses being completely destroyed and it caused a state of natural disaster (Green, 2005). The corruption of the government and industry with a combination of gross negligence and the state's connection with organized crime or, in other words, an orchestrated organizational deviation of the state contributed to the loss of life of a large number of people (Ibid., 2005: 528). Green and associates (2002) claim that in the case of the earthquake in Turkey in 1999 there was a clientelism practice that systematically jeopardized the possibility of harmonizing and applying existing (fully satisfactory) building standards and regulations. In addition, the authors state that the extent (size) of the accident was in the function of the systematic corrupt practice of state actors in urban planning and development (Ibid., 2008).

Therefore, the effective provision of state institution assistance during natural disasters is significantly impeded by the increasing abuse of funds (primarily money) intended for the protection, rescue and rehabilitation of people, material, and cultural goods and the environment.

POLITICAL VULNERABILITY

The link between the vulnerability of society and natural disasters has been in the research focus of many scientists. A systematic review of the scientific and research material has revealed a large number of definitions of vulnerability, which points to the importance of understanding this specific problem. Westgate and O'Keefe (1976) define vulnerability as a degree to which the community is exposed to the risk of extreme physical and natural phenomena, with the risk being related to the likelihood of the phenomenon and degree to which socio-economic and socio-political factors can affect the ability of the community to absorb and recover from extreme events. Accordingly, Cannon (1993) determines vulnerability as a characteristic of an individual or group of people who inhabit a certain natural, social and economic space within which differences in social positions reflect the degree of (lesser or greater) vulnerability of an individual and a group. Thus, the vulnerability of a society to natural disasters is conditioned by the differential factors of social, economic and political nature (Alcantara-Ayala, 2002).

In accordance with the framework guidelines of the ISDR, the basic steps for reducing the impact of accidents and reducing vulnerability are reflected in four categories of vulnerability (UNISDR 2002:44-45):

- Physical: density levels, remoteness of the settlement, its sitting, design and materials used for critical infrastructure and for housing.
- Social: levels of literacy and education, public health, peace and security, human rights, good governance, social equity, positive traditional values, customs and beliefs, and collective organizations.
- Economic: Gross and individual income, economic reserves, national debt, access to credit and insurance, economic diversity, infrastructure.
- Ecological: Resource depletion, resource degradation, resilience of ecological systems, biodiversity, exposure to toxics and pollutants.

Thus, while the ISDR does not explicitly list political determinants of disaster impact, they do seem to indicate that political vulnerability to natural disasters is just as important as social, economic, ecological, and physical vulnerability (Boyd, 2003). Indeed, defining politically vulnerability as the set of political institutions and conditions that increase a community's susceptibility to the impact of natural disasters, this model is improved with the inclusion of cluster of political variables that comprise the political dimension of vulnerability (Ibid., 2003).

Blaikie and associates (Blaikie et al., 1996) propose two interrelated models for explaining natural disaster: The Pressure and Release Model (PAR) and the Access Model (AM). PAR is intended to explain the progression of vulnerability, how its origins can be traced from unsafe conditions through economic and social dynamic pressures to the root causes (Aragón-Durand, 2009). AM explains how the different components such as household budget, income opportunities, class relations, and structures of domination change in different ways over time after the disaster (Ibid., 2009).

The significance of political vulnerability is most effectively expressed through a dynamic model (Blaikie et al, 1996), which treats risk as the result of a series of steps that progressively increase vulnerability. Accordingly, the basic causes that contribute to political vulnerability are *limited access to power and political ideology*. *Dynamic pressure* through the lack of local institutions and freedom of the media greatly contributes to increasing the level of political vulnerability. Finally, *unsafe conditions* (fragile physical environment, fragile local economy, vulnerable society and public actions) round up the process of progression of political vul-

nerability.

Thus, root causes as the socio-economic, political, historical, and ideological processes ingrained in society, are connected with the function of the state, and reflect the exercise and distribution of power in a society (Aragón-Durand, 2009). According to Wisner et al. (2004: 53) economically marginal people (such as urban squatters) who live in an environmentally marginal ecosystem (flood-prone urban locations) are also of marginal importance to those who hold economic and political power. For these populations, this creates three often mutually reinforcing sources of vulnerability. First, if people only have access to livelihoods and resources that are insecure and unrewarding, their activities tend to generate higher levels of vulnerability. Second, these people are likely to be of low priority for government interventions intended to deal with hazard mitigation. And third, people who are economically and politically marginal are more likely to stop trusting their own methods for self-protection and to lose confidence in their local knowledge (Wisner et al., 2004: 53).

The vulnerability of the society to natural disasters depends to a large extent on the available operational capacities of the competent state institutions, which among other things, are considered necessary for the implementation of a disaster risk reduction policy. Hewitt (1997) argues that the vulnerability of modern society is mainly the matter of legal, political and moral frameworks. In addition, the author describes the political framework in which politicians and policymakers often ignore the demands of endangered people despite the empirical evidence that supports their expectations. The reason for this type of behavior is the insufficient political power of endangered (vulnerable) people, which in many cases contributes to the fulfillment of all requirements and needs.

CONCLUSION

In scientific literature, there is a significant degree of differentiation of the views of researchers in terms of the precise definition of natural disasters and conditions which in certain cases represent catalysts of destructive consequences of unexpected extreme natural phenomena. In recent years, the frequency of natural disasters has been significantly increased with the effect of uneven spatial dispersion. Namely, the negative consequences of this type of disasters equally affect both the developed and the undeveloped and the developing countries. The organizational deviation of the state expressed through permanent abuse of public authority contributes to the consternation of the state of affairs during and after natural disasters. This paper describes systemic corruption as a phenomenon that makes it difficult for the competent state authorities to effectively respond to the needs of the vulnerable population.

By reviewing the scientific literature, there is a certain correlation of the vulnerability of the social community with certain factors of social, economic and political nature. In line with that claim, Blaikie et al. (1996) developed two models (PAR and AM) important for emphasizing the connection between natural disasters and the (political) vulnerability of the community. A comprehensive analysis of the International Strategy for Disaster Reduction suggests that political vulnerability is deeply integrated into society and becomes an important indicator of the distribution of power in different social strata. So, if a certain politically and economically marginalized group of people is faced with the devastating effects of natural disasters, the odds are not in favor that the state authorities will provide the necessary and much-needed assistance.

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SECURITY OF THE REPUBLIC OF SERBIA THROUGH PRISM OF CHURCH AND RELIGIOUS COMMUNITIES

Hajradin Radončić, PhD [1]
University of Defense in Belgrade, Military Academy
hajradin.radoncic@gmail.com

Samed Karović, PhD
University EDUCONS, Sremska Kamenica, Faculty of Security Studies
karovic.samed@gmail.com

Abstract: The paper describes and explains the geopolitical, geostrategic and international situation of the Republic of Serbia as an important element of its security in contemporary international relations. The security of the Republic of Serbia is being examined through the prism of church and religious communities as an indispensable factor in national security.

At the same time, the paper presents factors that can have direct implications for the state of security of the Republic of Serbia. The authors especially highlight the interest of churches and religious communities in the area of security and political action, thus clearly pointing to the significance of national security that churches and religious communities have in their sphere of social action.

The paper also emphasizes the relationship between churches and religious communities towards security, with an emphasis on attitudes towards compromising security. The views of the respondents in the conducted research are oriented towards accepting positive elements that contribute to mutual assistance, cooperation and understanding in terms of security and defense of the Republic of Serbia. The conducted research was carried out in the territory of the Republic of Serbia, and the subjects of the population are the members of the Serbian Orthodox Church and the Islamic Community.

Keywords: security, national security, church, religious communities, defense

INTRODUCTION

Security of the Republic of Serbia is a key factor in its development. Different factors may affect security in the form of international position, geopolitical position and similar factors. International position is related to military alliance, economic and other associations. Geostrategic position of the Republic of Serbia is determined by elements which have changing character, and depend on location, relief, economic systems, political systems etc.

Church and religious communities in the Republic of Serbia may have significant impact on security system. This paper considers the relation between churches and religious commu-

1 Hajradin Radončić, PhD, hajradin.radoncic@gmail.com

nities as a threat to the security of the Republic of Serbia and cooperation of churches, religious communities and security and defense of the country. The focus is primarily expressed on attitudes of the members of the Serbian Orthodox Church and the members of the Islamic community.

This paper identifies the most important attitudes of the above mentioned members as a result of the research work conducted in field conditions for a doctoral dissertation defended at the Military Academy of the University of Defense.

POSITION OF THE REPUBLIC OF SERBIA

Geostrategic position of the Republic of Serbia is characterized by numerous factors such as location, relief, economy, social and political system, population and others. This factors have a significant effect on security and national defense having in mind their changeable character. The Republic of Serbia is a small landlocked country with no exit to the sea. Located at an important junction of transport corridors with very sensitive international position, both in relation to surroundings and international community and its modern geopolitical and military-strategic relations.

The position of the Republic of Serbia is complex, determined by many factors as political, economic, historical, geographical, military which represent mutual unity. Due to various factors, international position of the Republic of Serbia is changeable, especially in terms of its political, economic and military component. From international position point view, geostrategic position of the Republic of Serbia is very important. It shows position of Serbia in relation to the military-political alliances, economical and other associations, geostrategic hotspots and situation in country and region.

Geostrategic position of Serbia is determined by many factors, the most important are: (1) historical and political situation and the formation of National sovereignty; (2) relation with neighboring countries and organizations in the international community forums; (3) the position of Serbia in relation to the regions and objects of the strategic and operating sites; (4) ability of the country; (5) influence of military geographical factors; (6) demographic characteristics; (7) priorities of foreign and domestic policy and (8) cultural-historical heritage and spiritual state of the nation (Мишовић, 2008).

Three groups of factors affect geostrategic position of Serbia: outer, inner and geographic factor (Мишовић, 2008). There are plenty of external factors that influence geostrategic position of the Republic of Serbia, and represent influence of wider environment. One of the most important is the disappearance of bipolarity, arm race and the Cold War in Europe and in the world. Other significant factors of the geostrategic position of the Republic of Serbia are: (1) economic and technological dominance of developed countries, primarily the US, over developing and small countries; (2) the imposition of the doctrine of "collective security" based on military, political and economic power of great powers; (3) the impact of great powers on the UN and its institutions, 4) construction of a unipolar world crisis makes the process of globalization, under the direct leadership of the United States as the only force that gives itself the right to be able to solve all the problems of the global crisis and to their own interests; (5) existence of many unstable areas in the world and in Europe; (6) the violent imposition of democracy under the pretense of human rights by the West and the United States, according to their view o democracy and human rights, and (7) strategic environment of the Republic of Serbia being surrounded by the NATO member countries. Particularly noteworthy from this group of factors are those segments that have a direct impact on the Republic of Serbia and are manifested primarily on resolving relations in the region and with its neighbors. From

the context of external factors, territory and importance of the Republic of Serbia, the stated factors have a significant impact on its geostrategic position.

Internal factors of geostrategic position of the Republic of Serbia are the product of the overall of the political, economic and military state. The most important internal factors are: (1) the Republic of Serbia is a country in transition; (2) position of Serbia in the international community has a tendency to change; (3) reform of Defense system and the Serbian armed forces; (4) ongoing process of property rights, and market economy; (5) adverse economic movement within the country and (6) the existence of neuralgic areas such as Kosovo and the south of Serbia. The factors that are relevant, but not particularly noteworthy are adverse economic trends in the country and the existence of neuralgic areas such as Kosovo and Metohija and southern part of Serbia.

Geographical factors have powerful impact on the geostrategic position of Serbia. The most important are: (1) connections between the front line of Serbia with the most significant concentration in the surrounding areas, such as: Pannonia, Southern area Aegean (2) the extension zone of strategic and operating directions, which goes throughout the territory of Serbia: the Danube, and Po-Ukrainian, Pannonian- southern and Aegean - Pannonia area and (3) a number of air corridors above the front line of Serbia. In some circumstances these factors may have negative effect on security and defense capability of the Republic of Serbia.

Bearing in mind the geo-strategic position of Serbia and current military and political processes and wider surroundings, it can be concluded that its security can be compromised as result of aggression, armed and unarmed. The danger of armed aggression against the Republic of Serbia has been significantly reduced, but not completely excluded, but can occur as a result of armed conflict or regional character caused by opposed interests of great powers and countries in the region (Стратегија националне безбедности Републике Србије). The most serious security threat to Serbia and stability of the region, in general, it is illegal and the so-called single-sided declared Kosovo's independence.

The Republic of Serbia is responsible for solving all the problems in international community, primarily through participation in the Partnership for Peace. Participating in Partnership for Peace program is one of the aspects of Serbia cooperation with NATO. The Republic of Serbia was invited to join the Partnership for Peace at the NATO summit in Riga on 29 November 2006. In accordance with this invitation and the decision of the Government, Serbia signed a framework document on 14 December 2006 in Brussels. Selection and adoption of goals of the partnership, in particular objectives L 0035 and L 0047, sets new obligations and requirements that the member states of the Partnership for Peace perform labeling specific power (unit) in accordance with their capacities to carry out all obligations. In line with the orientation of the Republic of Serbia on its security it provides security of direct threats or aggression against our country. With regard to this orientation of security of the Republic of Serbia, it provides protection from direct threats or aggression (Радончић, 2014).

The important point of security of the Republic of Serbia is based on churches and religious communities as a a factor of national security. This segment can have positive or negative implications on the overall situation in the country, especially from a security standpoint. Churches and religious communities may have an element of connectivity between specific and culturally diverse backgrounds, particularly from the point of religious affiliation.

CHURCHES AND RELIGIOUS COMMUNITIES AS SECURITY SYSTEM ELEMENT

Churches and religious communities in the Republic of Serbia may represent a factor of security system. These are areas in which churches and religious communities can look for its operation on development of the security system of the Republic of Serbia.

CHURCHES AND RELIGIOUS COMMUNITIES

One belongs to a particular church and religious community by birth: a newborn belongs to the church or religious community to which their parents belong to. It gathers followers from all walks of life, regardless of sex, age, race or ethnicity. Religious community type of church is characterized by centralization of decision-making power, hierarchical relations and stability. It is easy to identify with society, positive attitude towards it, it is easier adapted by followers, and sometimes it can become a "guardian" of the society. Church in a spatial sense means a building where Christians gather to perform rituals (v.) In the group; a place where believers gather participating in the spiritual life that connects them as religious and moral community (Речник религијских појмова, 2009).

The Constitution of the Republic of Serbia defines that Serbia is a secular state, the churches and religious communities are equal and separate from the state, the citizens are guaranteed freedom of "conscience" and "religion" and that everyone is free to express his / her "faith" or "belief" "confession of faith" (Ustav Republike Srbije, 2006). Freedom of religion includes the "freedom to have or not to have, retain or change religion or religious belief, and freedom of belief, freedom to profess faith in God; freedom, either alone or in association with others, in public or private, to manifest religion or religious conviction in worship and performing religious ceremonies, religious instruction, and classes, and fostering the development of religious traditions; the freedom to develop and promote religious education and culture" (Закон о црквама и верским заједницама, 2006). The Law on Churches and Religious Communities of Serbia Article 4 states "subjects of religious freedom in the sense of this law are the traditional churches and religious communities, confessional communities and other religious organizations" (Закон о црквама и верским заједницама, 2006). The problem becomes especially acute when in a particular case a particular term should be given "legal significance".

The Law on Churches and Religious Communities uses the term "church" and it is linked to the "traditional church" and "confessional communities". The term "confessional communities" in the Law on Churches and Religious Communities in its Article 19 is defined as "religious organizations" which states: "The Register may not register religious organization whose name includes the name or part of the name expressing the identity of a church, religious community or religious organization which is already in the Register or has already filed an application for registration", (Закон о црквама и верским заједницама, 2006).

It can be concluded that the word church primarily means a building that performs Christian religious rituals, temple, place of worship, the church, the community of Christians, organizations, institutions, choirs nation, a place where believers gather participating in the spiritual life that connects them as religious and moral community, bound by traditional churches, as well as marking confessional communities and religious organizations.

The Law on Churches and Religious Communities associates the term "religious community" with "traditional religious communities". According to Art 10 the Law on Churches and

Religious Communities provides that "traditional religious communities in Serbia are those which have centuries-long historic continuity, having acquired legal subjectivity through special laws, especially Islamic religious community and the Jewish community", (Закон о црквама и верским заједницама, 2006).

In line with those definitions in the research, religious community is determined by the content and scope and it is a part of society, representing people with common characteristics, who live in a particular area and have a common history or common social, cultural, economic and other interests and religion. It is connected to characteristics of images between those people who are the members of the community. A linking factor might be space and religious identity.

An important question from the point of view of security and defense is the cooperation between churches and religious communities, and this segment can have positive or negative implications on the overall situation in the country. In the context of security, it is important to consider the issue of the cooperation between churches and religious communities as influential elements and people connections, especially taking into account the recent past and the events in the war during the process of disintegration of the former Yugoslavia.

The issues that are important from the viewpoint of security, in particular the text, are considered in the sphere of 1) relations between churches and religious communities to security threats and 2) cooperation of churches and religious communities on security and defense.

RELATION OF CHURCHES AND RELIGIOUS COMMUNITIES TO SECURITY THREATS

Regarding the relation between churches and religious communities to security threats of the Republic of Serbia, an empirical research had been conducted in the territory of the Republic of Serbia on a sample of 1,334 respondents, or sub-sample of 761 respondents of Islamic community and sub-sample of 573 respondents of the Serbian Orthodox Church. In order to test the merits of the assumptions we applied a statistical procedure for testing the significance of differences of arithmetic means, the so-called t-test[2]. With the t-test conducted regarding previous statement, statistically significant differences between the samples were found, while the use of the t relation [3]helped us to make the conclusion regarding the contribution of churches and religious communities to security and defense.

From the perspective of immediate threat to the country in the event of an immediate threat of war or another way of endangering security, the views of the Islamic community survey participants, in relation to their reaction in a given situation, are presented in Table1. It should be emphasized that ''The use of the military in aiding civilian authorities represents a mission declared in the doctrinal documents of the Republic of Serbia. Its use in such situations is directly linked to consequences of natural and other types of disasters that threaten citizens and material goods" (Mihajlović, Karović, Ristić & Radovanović, 2016).

The modality of full agreement is most common in the statement "for assistance and engagement in case of natural disasters I am ready to respond to the state authorities notification and outside the territory where I live" (57.7%) and "authorities should engage their own pop-

2 For the mutual comparison of the results, two independent sample test of the software package SPSS 19 were used.

3 Limit values of t with a set number of degrees of freedom is $t \geq 2{,}58$ and was statistically significant at the $p=0{,}01$; and $p \geq 1{,}96$ to $p<2{,}58$ and was statistically significant at the $p=0{,}05$; (Petz, 1985).

ulation in the case of elementary and other disasters, regardless of their religious and ethnic affiliation" (54%).

The two above statemenst are categorical and have implications in terms of engaging in emergency situations, primarily when they occurred as a result of natural and other disasters. The Islamic community survey participants do not have any dilemma, and at any moment, according to their views, they have at their disposal the whole state which is, from the aspect of state security, a positive element.

Table 1: *Level of agreement with defense attitudes*

No	Survey participants views	Level of agreement (%)					
		I completely agree	I mostly agree	Indecisive	I mostly disagree	I completely disagree	Without answer
1.	All citizens are compelled to defend the country in case of security treats	44.5	24.2	10.8	4.6	15.6	0.3
2.	I will participate in the defense of the country because I feel responsible for its security	32.3	26.3	17.5	6.3	16.3	1.3
3.	It is an honor and pride to defend your country	41.5	23.7	19.4	4.3	9.5	1.6
4.	I will defend the country with the belief that it is my duty and obligation	34.8	25.4	18.3	5.4	13.5	2.6
5.	In order to help civilian authorities in the event of elementary and other disasters, their own population should be engaged, regardless of their religious and ethnic affiliation	54.0	23.3	10.0	1.8	9.9	1.1
6.	In the event of immediate threat and endangering the country's security, after the state authority's notification, I would respond to the mobilization	26.5	21.3	24.4	7.5	19.4	0.8
7.	If there is a need of engagement in peacekeeping operations conducted under the athority of the United Nations, I am ready to participate	27.7	17.0	24.0	8.3	21.7	1.3
8.	In case of natural disaster, I am ready to respond to the authority's call outside the territory where I am a resident	57.7	24.0	9.5	4.5	3.2	1.2

9.	I am not in favor of accepting the ideas "imported" from the side, which are not inherent in the cultural and ethnic identity, as well as the customs (traditions) of the people of this region	46.3	22.2	18.8	5.3	6.4	1.1
10.	Extreme outbursts of individuals and groups of any community violate security and defense of the R. Serbia	45.6	22.3	19.1	5.1	6.0	1.8

N=761 (100%)

However, the answer "I completely disagree" is most present in the statement "in case of immediate war danger and endangering the security of the country, and at the authorities's call, I would respond to the mobilization" (19.4%) and "If there is a need of engagement in peacekeeping operations conducted under the athority of the United Nations, I am ready to participate" (21.7%). The views of Islamic community participants in the above claims contain a high degree of repulsion and do not accept them. Particularly indicative is the attitude regarding the response to the call for mobilization as a key segment for the formation of war units, which is probably the consequence of past events in the former Yugoslavia and the consequence of the current presence of members of Islamic community in Serbian Armed Forces. This is a key issue that has certain implications for the defense system, and partly the security system.

The results of the survey show that the following statements are most acceptable (Table 2): "For assistance and involvement in case of natural disasters, I am ready to respond to the authority's call and outside the territory where I live" (M = 4.25), "to assist civilian authorities in the event of natural and other disasters, regardless of their religious and ethnic affiliation, their own population should be engaged' (M = 4.07), 'I do not accept the ideas "imported" from outside, which are not inherent in cultural and ethnic identity, as well at the customs (tradition) of the people (M = 3.93) and the "extreme exodus of the individuals and groups of any community violate the security and defense of the Republic of Serbia" (M = 3.91). It should be emphasized that ''In the assistance to civil authorities of a particular territory in controlling the consequences of a natural disaster, military units have to be equipped with modern telecommunication equipment. That way, the important role of the Army could be fullfiled", (Pavlovic & Karovic, 2015).

Slightly smaller scaled value have claims that reinforce defensive motivation: "It is an honor and pride to defend your country" (M = 3.79), "in case of endangering the security of the country, all citizens are obliged to defend it" (M = 3.77), "I will defend the country with the belief that this is my duty and obligation", (M = 3.55), "I will participate in the defense of the country because I feel responsible for its security" (M = 3.48).

The lowest rank, the smallest scaled values, were obtained for claims "in the event of immediate war danger and endangering the security of the country, and at the authority's call, I would respond to the mobilization" (M = 3.26) and "in the case of engaging in peacekeeping operations, conducted under the authorities of the United Nations, I am ready to participate"(M = 3.17).

If we analyze the results obtained by standard deviations of certain claims of defense motivation, the greatest consensus has been reached in the positions "for assistance and engagement in case of natural disasters I am ready to respond to the call of the state authorities and outside the territory in which I live" (σ = 1,123) and '' I am not in agreement with the acceptance of the ideas 'imported' from the side, which are not inherent in the cultural and

ethnic identity, as well as the customs (traditions) of the people of this area '(σ = 1,267), while the smallest consensus was reached with "I will defend my contry because I feel responsible for her safety" (σ = 1.470), "I will defend my country with the belief that it is my duty and obligation" (σ = 1,477), "in case of engagement in peacekeeping operations conducted under the jurisdiction of the United Nations, I am ready to participate in them" (σ = 1.524).

In the analyzed positions that primarily concern helping the population from any aspect, the respondents of the Islamic community belief are fully prepared for the engagement, while from the aspect of the engagement in the sense of action within the formed units that would perform combat tasks, they show no interest in participating, without any concern for the country's safety. The question above is debatable because it opens many problems of the country's vulnerability from the aspect of using force, so it is very difficult to be exclusive on this issue. However, even in such attitudes, it is important for the state authorities to have this solution ahead of them, especially when dealing with important issues, including security and defense of the country.

In order to obtain complete picture of the positions mentioned above, it was also important to present the atitudes of the Serbian Orthodox Church participants on the elements above. Table 2 shows the comparative attitudes of the respondents of the Islamic community and the Serbian Orthodox Church respondents, according to claims regarding the defense and security of the country.

Table 2: *Comparative presentation of the average values of degree of agreement with the defensive attitudes*

Survey participants views	Islamic comunity			Serbian Orthodox Church		
	Rank	M	σ	Rank	M	σ
All citizens are compelled to defend the country in case of security threats	6.	3.77	1.461	2.	4.47	0.909
I will participate in the defense of the country because I feel responsible for its security	8.	3.48	1.470	4.	4.31	1.053
It is an honor and pride to defend your country	5.	3.79	1.358	3.	4.41	1.004
I will defend the country with the belief that it is my duty and obligation	7.	3.55	1.477	6.	4.28	1.069
In order to help civilian authorities in the event of elementary and other disasters, their own population should be engaged, regardless of their religious and ethnic affiliation	2.	4.07	1.329	1.	4.48	0.921
In the event of immediate threat and endangering the country's security, after state authority's notification, I would respond to the mobilization	9.	3.26	1.461	6.	4.28	1.086
If there is a need of engagement in peacekeeping operations conducted under the athority of the United Nations, I am ready to participate	10.	3.17	1.524	10.	2.59	1.476
In case of natural disaster, I am ready to respond to the authority's call outside the territory where I am a resident	1.	4.25	1.123	8.	4.09	1.141

I am not in favor of accepting the ideas "imported" from the side, which are not inherent in the cultural and ethnic identity, as well as the customs (traditions) of the people of this region	3.	3.93	1.267	9.	3.66	1.353
Extreme outbursts of individuals and groups of any community violate the security and defense of the R. Serbia	4.	3.91	1.298	5.	4.29	1.034

N=761 (100%) / N=573 (100%)

A comparative overview of the obtained results among the respondents of the Islamic community and the respondents of the Serbian Orthodox Church show that the respondents of the Islamic community gave more importance to the following claims: "In case of engagement in peacekeeping operations conducted under the authority of the United Nations, I am ready to participate (M = 3,17), "for assistance and involvement in case of natural disasters, I am ready to respond to the call of the state authorities and outside the territory where I live" (M = 3,93), "I am not in consent with the acceptance of the ideas "imported" from the side, which are not inherent in the culture and ethnic identity, as well as the customs (tradition) of the people of this region" (M = 3.91), while the respondents of the Serbian Orthodox Church, in other claims which were the subject of research, gave significantly higher importance than respondents of Islamic comunity.

The respondents of the Serbian Orthodox Church are more focused on the security and defense motives than the respondents of Islam. This attitude of the respondents of Islamic community can be overcome by the organized social work which can have an influence on the change of the determination of participation of the respondents of the Islamic community towards the defense of the Republic of Serbia.

If the values of standard deviations are analyzed, it is found that the respondents of the Serbian Orthodox Church are more unique in relation to the degree of agreement in all claims, except in the cases of "help and engagement in the case of natural disasters I am ready to respond to the call of the state authorities (σ = 1,123) and ''I do not accept ideas 'imported' from the side, which are not inherent in the cultural and ethnic identity, as well as the customs (traditions) of the people of this region' (σ = 1.267), in which the respondents of Islamic community show greater unity.

Analyzing the claims of the Islamic community respondents regarding modalities specific to the immediate threat of war and endangering the security of the country after a call from the state authorities, I would like to respond to the mobilization of "as well as " in case of engagement in peacekeeping operations, which are being conducted under the authority of the United Nations, I am ready to participate", the views of the Islamic community participants in claims above contain a high degree of repulsion. This is a key issue that has certain implications on defense system, and partly of the security system. Seeking the reasons for such views of the Islamic community would require additional research in this field.

COOPERATION OF CHURCHES AND RELIGIOUS COMMUNITIES ON SECURITY AND DEFENSE

The country's security and defense are key elements of the research conducted. The issue of the Islamic community's relationship with security and defense of the country is one of the key issues from the aspect of the role of the Islamic community in the Republic of Serbia. The questions of the Serbian Orthodox Church about the security and defense of the country

are also significant, so that the views of the respondents of the Serbian Orthodox Church represent a reference value in relation to the views of the Islamic community in the Republic of Serbia.

A survey was carried out among the respondents from the Islamic community regarding the cooperation of the church and the Islamic community and its relation to security and defense, whether they were interfered with the functioning of the security and defense system of the Republic of Serbia. The results of the conducted research are shown in Table 3.

Table 3: *The attitude of the respondents of Islam about the claim: "Churches and religious communities are an obstacle in cooperation in the field of security and defense"*

Rank	CLAIMS	Frequency (f)	%
5.	Yes, I completely agree	55	7.2
4.	Yes, I partly agree	67	8.8
2.	Indecisive	124	16.3
3.	No, I partly disagree	104	13.7
1.	No, I completely disagree	405	53.2
6.	Without answer	6	0.8

N=761 (100%)

The fact that about two-thirds of the respondents of the Islamic community (66.9%) believe that churches and religious communities are not an obstacle to cooperation in the field of defense and security are apparently encouraging, given the experience of the conflict and the spread of nationalism among the population of the former Yugoslavia. Very few respondents stated that the cooperation between churches and religious communities is an obstacle to security and the defense of the Republic of Serbia, so it is insignificant and statistically should not to be taken into account. For the relevance of the views of the respondents of the Islamic community, Table 4 shows the comparative data of the respondents from the Islamic community and the Serbian Orthodox Church.

Table *4:* *A comparative overview of the views of both populations on the claim: "Churchesand religious communities are an obstacle to cooperation in the field of security and defense"*

LEVEL OF AGREEMENT	Islamic comynity		Serbian Orthodox Church	
	f	%	f	%
Yes, I completely agree	55	7.2	38	6.6
Yes, I partly agree	67	8.8	136	23.4
Indecisive	124	16.3	148	25.8
No, I partly disagree	104	13.7	102	17.8
No, I completely disagree	405	53.2	145	25.3
Without answer	6	0.8	4	0.7

N=761 (100%) / N=573 (100%)

Among the respondents of the Islamic community, 66.9% believe that churches and religious communities are not an obstacle to cooperation in the field of defense and security. In relation to the respondents of the Serbian Orthodox Church (43.1%), the difference is evident and amounts to 23.8%, which is statistically very significant.

The existence of such a difference has its roots in the historical heritage and is probably related to events bearing the consequences of the breakup of the former Yugoslavia. If we look

at the value of the calculated scale value, it is notable that the Islamic community has a scale value of M = 2.01, and for the respondents of the Serbian Orthodox Church M = 2.66, and on the basis of these values both groups consider that churches and religious communities are not an obstacle to cooperation in the field of security and defense (Table 5).

Table 5: *The display of the calculated values according to the claims that "churches and* religious communities are an obstacle to cooperation in the field of security and defense"

The category value	Islamic comunity	Serbian Orthodox Church
Scale value	2.01	2,66
Standard deviation	1.316	1,283
t ratio	9.124	
Level significance	0.01	

The attitudes of the respondents are statistically significantly different, so that in the Islamic community, the mean value of the assessment is 2.01, and the standard deviation is 1.316; among the respondents of the Serbian Orthodox Church the average value of the assessment is 2.66, and the standard deviation is 1.283. The corresponding t-ratio is 9.124 and is significant at p = 0.01.

The respondents of the Serbian Orthodox Church were more unique (σ = 1,283) regarding the "interference in security and defense in relation to the members of the Islamic community" (σ = 1,316), which is probably the result of a number of influential factors that were discussed in the previous part of the text.

The system of security and defense of the Republic of Serbia will develop in the future in accordance with the existing challenges, risks and threats. The directions of this development and the scope of reforms will depend on the concrete, general conditions and intensity of possible military security threats. Contemporary socio-political and security-defense trends condition the manifestation of direct and significant influence on national, regional and collective defense systems. The defense system of the Republic of Serbia is necessarily followed by changes in the environment whose key factors influence its development, which in particular refers to churches and religious communities that are also considered as a factor in the defense system (Радончић & Каровић, 2016).

CONCLUSION

The paper emphasizes that the position of the Republic of Serbia is determined by different factors, such as political, economic, historical, geographical, military and others, which express their influence in their mutual unity. In addition, it has been established that the geostrategic position of the Republic of Serbia and the current military and political processes in the immediate and wider environment can affect the threat of its security both by armed aggression and by unarmed forms of action.

It was pointed out that churches and religious communities in the Republic of Serbia can be a factor in the security system. These are areas in which churches and religious communities can seek to influence the development of the security system of the Republic of Serbia. It is a segment that can significantly have positive or negative implications for the overall situation in the country, especially from the security aspect.

The article deals specifically with the attitude of the members of the Orthodox Church and Islam towards the elements related to the issues of 1) the relationship of the Islamic commu-

nity to the threat to security and 2) the cooperation of churches, religious communities and security and the defense of the country.

It was found that the modality of full agreement is most common in the statement "for assistance and engagement in case of natural disasters I am ready to respond to at the call of the state authorities and outside the territory where I live", and "to assist civilian authorities in the case of elementary and other disasters should engage their own population, regardless of their religious and ethnic affiliation." Moreover, the analyzed attitudes that are primarily concern with helping the population from any aspect shows that the respondents of Islam are fully ready for the engagement, while from the aspect of the engagement in the sense of functioning within the formed units that carry out combat tasks, they show no interest in participating in them regardless of the vulnerability of the state. It should be emphasized that this is disputable, because it opens many problems of state vulnerability from the aspect of the use of force, so it is very difficult to be exclusive about this issue. However, even in such attitudes, it is important for the state authorities to have this solution in mind, especially when dealing with important issues, including security and defense of the country. In the context of the above, it is important to point out that the respondents of the Serbian Orthodox Church are more inclined towards security-defense motives than the respondents of Islam.

When it comes to the Islamic community's attitude towards security and defense, one of the key issues is relevant from the aspect of the importance of the Islamic community in the Republic of Serbia. The questions of the Serbian Orthodox Church about the security and defense of the country are also significant, so that the views of the respondents of the Serbian Orthodox Church represent a reference value in relation to the views of the Islamic community in the Republic of Serbia.

The conclusion that churches and religious communities are not an obstacle to the cooperation in the field of defense and security seems encouraging, given the experience of the conflict and the spread of nationalism among the population of the former Yugoslavia. Very few respondents stated that the cooperation between churches and religious communities is an obstacle to security and the defense of the Republic of Serbia, so it is insignificant and statistically not to be taken into account. Certain issues that are not completely correlated result from negative historical heritage and do not have a significant impact on active cooperation between churches and religious communities in the Republic of Serbia.

In particular, it should be emphasized that the security and defense system of the Republic of Serbia will develop in the future in accordance with the existing challenges, risks and threats. The directions of this development will depend on the concrete, general conditions and intensity of possible military security threats.

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THE SOURCE OF ISLAMIC EXTREMISM IN SOUTH-EASTERN EUROPE

Hatidza Beriša PhD[1]
Igor Barišić, MSc[2]**,**
University of Defense, Military Academy
Katarina Jonev, MSc [3]

Abstract: Extremism is an extremely complex security phenomenon. Numerous specificities that hinder it are compounded, both by its conceptual definition, and by defining possible ways of opposing. The definition of the extremism is also influenced by the specific characteristics of individual personality. In this sense, extremism also has a certain dose of an abstract sphere of its existence that is unique and very difficult to predict. The most important determinant of extremism is the intolerance towards the attitudes and thoughts of others with the simultaneous readiness to defend their attitudes and beliefs with available means.

The paper presents the contents pointing out the geopolitical significance of the region of South-eastern Europe and the Balkan Peninsula. Particular attention is given to the consideration of the importance of Southeast Europe as the contact space of the two most powerful holy religions. Closer attention has been given to the contents that point out the contexts of Islamic extremism.

Keywords*:* extremism, South-eastern Europe, Islam, religions, Islamic extremism, fundamentalism.

INTRODUCTION

Contemporary history, in a security sense, is characterized by an increase in extremism regardless of its origin, type, and carriers. Extremism, as a security phenomenon and threat, is related to the related forms of endangering the security of the individual and society. Security phenomena and threats such as terrorism, radicalism, fundamentalism and fanaticism have touch points with extremism, but also significant differences. Finding and applying appropriate strategies to successfully counter extremism, regardless of form and carrier, requires knowledge of the related security phenomena.

Southeast Europe has a remarkable geostrategic position and has always been the object of interest of both regional and world powers. It represents the bridge and key link between Europe and Asia, both spatial and political, as well as in religious sense. Continuous struggle for the dominance of interest has caused a large number of events that left significant and long-term consequences on the development of the region of Southeast Europe. The contra-

1 hatidza.berisa@mod.gov.rs
2 igor.barisic@va.mod.gov.rs
3 jonev.katarina@gmail.com

dictions between Christianity and Islam have been prolonged for centuries and were the basis for creating a long-term policy of both political and religious elites.

Islam is a religion brought to the Southeast Europe by the Ottoman Empire. The result of the centuries-old presence of the Ottomans in the enslaved areas of today's Southeast Europe has permanently changed the national and demographic structure of the population. After the fall of Ottoman rule, the region of Southeast Europe remained incoherent in a religious sense. The compactness of the Christian religious corpus has been undermined by the population of Islamic religion whose roots are in the genes of the Turkish conquerors, but also in the geniuses of the Christian world that has been converted into Islam by force or voluntarily. In this way, as a religion, Islam permanently entered the European continent and created a new quality of relations in the political, religious and security realities. Southeast Europe has thus become a region of exceptional importance for which is worth fighting. It has become a place where the destinies of peoples, nations and states have been solved and resolved.

THE SOURCE OF ISLAMIC EXTREMISM

Southeast Europe, in a geopolitical sense, represents an extremely important area in which different interests of regional and world powers intertwine. The importance of this space is multiple. Contemporary political terminology uses the same names as the Balkans, the Balkan Peninsula, but also Southeast Europe. These terms were used simultaneously in some periods, some times more often than others, which depended on who used it and to what purpose.

The Southeast of Europe usually associates itself with a territorial political entity formed in that part of Europe, or simply used to denote membership in Europe as a whole (Šolaja, 2006:20). Germany, during the Second World War, under the term South-eastern Europe, meant the area south of the south-eastern borders of Germany, towards the southern borders of the Soviet Union, and included Turkey and Cyprus (Matijašević, 2013:6). In the projects of the Nazi New Europe, the terms Balkan and Southeast have emerged as a contradictory fact, without occupying a central place. They were, however, an extremely important part of the global consideration of the organization of the reign of the thousandth Reich on the European soil (Ristović, 1998:478).

The shortest, cheapest and least demanding terrestrial corridor connecting Europe and Asia extends across Southeast Europe. South-eastern Europe, and within it the Balkan region, represents an exceptional basis for the breakthrough to the Caspian basin and further to the far east of Russia. The rich history of this region points to the continuity of events that largely create a regional and world security scene. Practically, no event of importance for global security has circumvented the area of South-eastern Europe.

Southeast Europe and the region of the Balkans have extraordinary significance both in terms of religions, primarily Christianity and Islam. How important this space is for the largest religion in Europe is the fact that they call it the "rampage of Christianity". The beneficial characteristics of the relief and natural openness also influenced the course of the war horses that have been in the course of history in this region. One of the most important was the breakthrough of the Ottoman Empire to Europe. The inability and disunity of the great European powers of that time to resist the Ottomans resulted in the centuries-old enslavement of a significant part of the territory of Southeast Europe. Religious intolerance between Christians and Muslims for centuries has been used by regional and world powers for the realization of their interests. This is why this region is one of the possible crisis hot spots in the world that can be quite easily activated in order to realize the interests of power holders in the region and the world. A direct example is the war in the territory of the former Socialist Federal Republic

of Yugoslavia, mainly in the territory of Bosnia and Herzegovina, Kosovo and Metohija and the Republic of Macedonia. In addition, there are many security problems in other parts of Southeast Europe, which basically have a civilization and religious conflict between Christianity and Islam, such as the problem between Greek Cypriots and the Turks, and the problem in Bulgaria with the Turkish national minority.

SOUTHEAST EUROPE AS A CROSSROAD OF RELIGIONS

The roots of the most important world religions are located in the Middle East, from where they gradually began to spread to other parts of the world. Thanks to different historical circumstances, Christianity has managed to expand most focusing on Europe and Asia. On the other hand, Islam as the youngest religion from the Middle East region has directed its expansion towards the rest of the Asian continent and to the area of Africa. The emergence of Islam on the world's religious, but also the security stage has resulted in a new redistribution of power. However, when power is concerned almost as a rule, a case of dissatisfaction with one of the parties occurs. This discontent was a fertile soil for the emergence and development of inter-religious intolerance and conflicts that left millions of victims behind.

When discussing the problem of religion conflicting in the area of South-eastern Europe, it is necessary to confine itself to the conflict between Christianity and Islam. Inter-religious conflicts that existed or last in the area of Southeast Europe, and whose actors are not Christianity and Islam are of marginal importance for this work. This significance of the region of Southeast Europe in the geo-strategic and geopolitical sense has inevitably influenced today's movements related to religion. This fact was crucial in the Middle Ages when religion was identified with the state and when it was the basis for the organization of the political, social and religious life of the population.

In addition to the fact that Southeast Europe and the Balkan Peninsula as its key region, in physical terms, represent the bridge that has merged and which connects the two continents, it also represents the bridge across which centuries of different cultures, civilizations, and religions have crossed. The significance of this space is conditioned by the existence of numerous factors concerning the social, political, economic, cultural, religious and military spheres regardless of whether they are internal or caused by the external action of the great powers (Lutovac: 2012).

In spite of the fact that in the geographical sense South-eastern Europe is a part of the European continent, this region has not yet managed to overcome the cultural distance and fully integrate into the economic, political and social European space. South-eastern Europe is a set of small and medium-sized countries that have failed to choose to form a kind of supra-national cultural, economic, and religious entity. Instead, this region offers very favourable conditions for pursuing the interests of regional and world powers, and one of the most important conditions is the multiculturalism and multiconfessionalism of the space, viewed from the perspective of possible causes of crisis. Conquering hikes, both from the region of Europe to Asia, and vice versa passed through South-eastern Europe and the Balkan Peninsula, leaving each time new things that influenced the life and development of the countries of the region and shaped the security situation. From the aspect of the issues considered in the paper, the most important relate to the Crusades, as well as the conquest in the territory of Southeast Europe by the Ottoman Empire. In the historical sense, the Crusades have left deep consequences, from which in terms of the issue of labour, important are those concerning the relationship between Christianity and Islam. The unequivocal strengthening of Islam and the spread of influence in relation to Christianity inevitably caused the rise of concern and

dissatisfaction and the appearance of feelings of jeopardy of Christian leaders. The persistence of religion and the state during the Middle Ages gave rise to the political influence of Islam in Asia Minor. The existing animosity between Christians and Muslims created in the previous period was deeper in the period of the Crusades. The atrocities and crimes committed by the European powers against the Muslim population under the cloak of the struggle for the cross and the cradle of Christianity influenced the intensification of the hostility of the Muslims toward the Christian world. The Crusades also caused enormous suffering and fall into the ranks of conflicts that caused the greatest human casualties in human history.

The Turkish Empire stepped into the space of the countries of Southeast Europe in the 14th century, bringing to the European Christian world the biggest defeat by that time. In addition to the military conquest of a significant part of the European continent, a major state in the area of present-day Southeast Europe, the arrival of the Ottoman Empire also led to the continued expansion and influence of Islam in the newly established areas. The centuries-old presence of the Ottoman Empire in the area of Southeast Europe had a lasting impact on the formation of a security image, both at the regional and global level. There was a collision between two completely different civilizations. Practically, from that time to the present day in the area of South-eastern Europe, a kind of new sub-civilization has developed representing a mixture of Western - Christian and Eastern - Islamic. The new living conditions of the population in this region also caused a number of specificities that inevitably shaped the security of the region. The fact that the Balkans, South-eastern Europe, and Europe as a whole stepped in Islam influenced the revision and definition of new geostrategic interests of regional and world powers. The confrontation and confusion of Christianity and Islam in the area of South-eastern Europe through centuries was used by great world powers to fulfil their proclaimed interests.

On the other hand, the question arises: "What are the possible interests of the Christian and Islamic religious leaders to maintain tensions between these two religions?" History offers a natural answer. The eternal hostility and rivalry of these religions is so ingrained in the consciousness of people that it simply cannot be erased. In addition, it is important to mention that in the nature of man is a struggle for power. In religious circles the struggle for supremacy and power is extremely present. The clergy have several ways to increase their power, and thus the power of religion they represent. Certainly, it is one of the most significant and most important expansions of the territories on which their faith is represented and the increase in the number of believers. A very successful way to control a population is religious maintaining of the necessary level of inter-religious tensions and hostility. By creating a sense of discomfort and endangerment by members of another religion, it creates and maintains the energy needed for man, in addition to theoretical, to start practically for religious purposes. No known way of controlling people and motivating them for action is as strong as religious influence. Unlike other motivational factors, religion creates a positive attitude towards people to do with it.

The confrontation between Christianity and Islam in the Balkans and South-eastern Europe is continuing. This conflict does not take place independently or separated from political events in this region. Religious and political connection is inevitable. Regardless of the fact that all the countries of South-eastern Europe are secular and that religion, at least in theory, is separate from the government, the influence of religion is present and very significant. This practice is confirmed by political officials in defining national interests who hold meetings with religious officials before making any significant political decision. In practice, religious interests are incorporated into national interests and in different ways it is not possible to observe them.

Based on everything written above, it is clear that a "silent war" is taking place in the Balkans and Southeast Europe to spread the political and religious influence among the lead-

ing Islamic countries, mainly Turkey, as one of the strongest regional powers and European countries. The religious conflict between Christianity and Islam should be viewed through the prism of achieving Turkey's long-term interests in the Balkans and Southeast Europe. In doing so, it is necessary to consider the Green Transversal Project in more detail, which embodies Turkey's long-term interest in this region, as well as the whole Europe.

The Green Transversal is a project that is a subject of dispute between scientists from the ranks of European Christian countries and those who are prone to Islamic faith. Those who argue that Green has transposed some type of conspiracy theory base their learning on the unrealistic nature of its realization. On the other hand, historical developments in Southeast Europe, as well as the presence of Turkey in various forms, mainly economic and religious, clearly indicate the reality of the existence of such a project and its far reaching goals. In addition, it is a significant fact that points to the broader geopolitical interest of the United States, which is realized by the Green Transversal. The Green Transversal considerations intensified at the end of the 20th century and war conflicts in the Balkans. The advocates of the realization of the Project intensified their actions by directing the scientific public to the fact that the war events in Bosnia and Herzegovina, in the territory of the Autonomous Province of Kosovo and Metohija, as well as the strengthening of Islamism in Raska region, are practically the realization of the Green Transversal Project. Practically, these events point out the justification of the thesis that at their core it is the conflict between the Christian and the Muslim world, i.e. the conflict between Christian and Islamic civilization.

In order to understand the essence of the Green Transversal, it is necessary to highlight the most significant aspects of the war in the territory of the former Socialist Federal Republic of Yugoslavia. The end of these wars created a completely new security reality in the Balkans and Southeast Europe. The majority Muslim population in Bosnia and Herzegovina advocated and today advocate an interest in unitarisation, which would make this country unique in a territorial sense, and conditions would be created for the gradual suppression and putting on a side the Serbian national corps, which is Christian. By the realization of this intention and taking into account the fact regarding the violent secession of the southern Serbian province and the creation of an independent state, Turkey opens the door to further intensify its presence in the Balkans. Looking through the spectrum of religious influences in this region, Islam through the realization of the Green Transversal Project establishes its positions in the Balkans and Southeast Europe on the one hand, and on the other, it creates the basis for further penetration into Central and Western Europe. Taking into account that the Christian nations in Southeast Europe and the rest of the European continent are characterized by a low rate natural increase, which has a negative sign in a significant part of the countries, Islam has long-term favourable conditions for strengthening and further expansion.

In addition, a significant number of Orthodox Serbs left the centuries-old homes in the territory of Bosnia and Herzegovina and the territory of the Autonomous Province of Kosovo and Metohija. In this way, practically the two countries are inhabited by the majority population of the Islam - Bosnia and Herzegovina and the so-called "Kosovo". These territories, although they do not lean physically to each other, are connected with the area of the Raska region, which has a clear significance from the point of view of the Green Transversal theory. In this way, a significant part of the space inhabited by the majority Muslim population, which transfers the coverage in the Balkans, is practically established and rounded up. Conditions have been created for further linking the Muslim population from the Balkans to Turkey in several key directions.

The first route extends over the territories of Albania, Macedonia and Kosovo and Metohija and continues through the territory of Raška to Bosnia and Herzegovina and the depths of the European continent. Part of this direction is separated by Montenegro and goes further towards Bosnia and Herzegovina. This direction of the further strengthening of the Green Transversal interrupts two state spaces inhabited by the majority Orthodox population. In the north it is Serbia, and in the south it is the territory of Montenegro.

The breakthrough of Islam into Europe cannot be imagined without the territory and population that preaches and nourishes that faith. For this reason, it is crucial to realize Turkey's long-standing interests in Southeast Europe desiring to secure territorial link covered by Muslims. The above facts indicate that the thesis on the Green Transversal, both from the geopolitical point of view and the spread of the influence of Turkey in the region of the Balkans and Southeast Europe, as well as from the aspect of the penetration and expansion of Islam into the new territories, makes full sense. What is posed as a logical question is: "What are the further goals of Turkey's geopolitical games in Europe, and thus the expansion of Islam?" One of the possible and realistic answers is further penetration towards the depths of the European continent. The contemporary migration movements of the population of Islamic religion during the 20th century from the territory of Turkey, Albania, the Autonomous Province of Kosovo and Metohija, Montenegro and Bosnia and Herzegovina, as well as from the area of the African continent to West European countries also caused significant changes in demographic, confessional, cultural and sociological structure of these countries. The obvious result is the settlement of the multi-million population of Muslims in the developed European countries. Bearing in mind the simple fact stated in the paper that it is impossible to spread Islam or any other religion without population, as well as the allegations of the Green Transversal, the natural conclusion is that the further goal of spreading Islam is directed towards the heart of the Old Continent. In this context, the region of the Balkans and South-eastern Europe is of paramount importance because it is a springboard for further penetration of the Islam into Europe.

THE HISTORICAL, POLITICAL AND SOCIOLOGICAL CONTEXT OF THE OCCURRENCE OF ISLAMIC EXTREMISM IN SOUTHEAST EUROPE

Islamic extremism is a phenomenon that cannot be tied to a single geographic region. Therefore, one of its main features is a global character. However, each region has specific conditions that have contributed to the emergence of Islamic extremism. These conditions are numerous. They arise from different spheres of social life, of which particular attention should be paid to the historical, political, sociological and security spheres.

The breakthrough of Islam on the soil of Southeast Europe began with the invasion of the Turkish Empire. This is the first fact that needs to be considered when it comes to the causes of the emergence of Islamic extremism. At first glance this is illogical. However, there is a link that can be the basic cause of the emergence of Islamic extremism. With the arrival in the South-Eastern Europe, a five-hundred-year era of Ottoman conquers began. The fact that the Turks brought with them a large number of positive civilization changes to the everyday life of the population in this region are indisputable. There are many methods used by Turkish boot to subdue Christians and maintain their regime in every part of their empire. A significant moment that has to be considered in this context is the identification of religion and national or ethnic identity. The fact that the Ottoman Empire was a classical example of this identifi-

cation and the theological nation (Simeunović, 2002) is at every step emphasized by its own ethnic and religious superiority in relation to the oppressed Christian population.

Because of the hostile attitude of the occupiers, a natural and strong hostile feeling arose in the local Christian population. This feeling was the guiding principle that led to rebellion and uprising, i.e. to providing organized resistance. As time passed, from the subjugated and weak Christian peoples and nations, the Turkish Empire was gaining ever stronger and more serious enemies. The more the enemy grew, the more animosity between the opposing sides grew. This was especially present in the area of the Balkan Peninsula, i.e. today's Western Balkan countries (Šolaja, 2006:25).

The gradual decline in the power of the Ottoman Empire and its collapse in the region of Southeast Europe caused the appearance of feelings of deprivation, impotence, envy, and a desire for revenge directed towards the Christian population. The development of such feelings is completely understandable given that it was difficult to give up all the privileges, riches, and feelings of supremacy over the oppressed Christians. It was these feelings that deeply embedded in the consciousness of the outgoing Turkish state, but also in the Muslims who remained in the Balkans and Southeast Europe. Such a development of the situation conditioned the duration of eternal hostility, both on the political plane and on the inter-religious line. There was a sense of threat with the local Islamic population caused by the new authorities knowing what the past protectors in the form of the Ottoman authorities made to the Christian population. Wherever there is a sense of vulnerability and dissatisfaction with the state's attitude towards an ethnic or religious community, whether it is justified or not, there is a fertile ground for the development of extremist ideas and movements.

The emergence and development of Islamic extremism in the Balkans and Southeast Europe is a very important historical period that has been linked to the last decades of 20th and the beginning of the 21st century. The concept on which the Socialist Federal Republic of Yugoslavia was based rested on the suppression of national and religious consciousness at the expense of the general communist idea of equality and state interests. The basic problem of this setting of things was in the unequal status that the state leadership had towards certain members, and therefore towards certain nations. First of all, it refers to the attitude towards the Republic of Serbia and its provinces and towards the Serbian people. This resulted in a lower degree of economic and general social development. Bearing in mind the fact that in the territory of the Republic of Serbia and its southern province a significant number of the population of Islamic religion lived, the general situation inevitably affected them. The local Muslim population saw a problem in their status in the authorities of the Republic of Serbia, which was one of the main reasons for starting their fight for a better life. The epilogue is clear and familiar. The focus of the emergence and development of extremism in the population of Islamic religion was in the territory of the Autonomous Province of Kosovo and Metohija. In the 1990s, after the collapse of the common state, there was a significant expansion of Islamic extremism in the Balkans and Southeast Europe.

The conflict between Orthodox Christianity and Islam during the civil war in Bosnia and Herzegovina, in addition to fighting for the definition of a national identity, caused the arrival of a large number of volunteers from the Islamic population from all over the world to the Balkans. The appearance of holy warriors, the mujahedin, contributed to the more explicit religious line of this war. Some foreign and domestic sources estimate that there were 3000 foreign fighters during Bosnian war (Azinović, 2007). The special units formed by these people committed such atrocities against the opposing side that the modern world, deliberately or inadvertently closed its eyes to. After the end of the war, some of these people remained permanently resident in Bosnia and Herzegovina and represent a long-term potential security threat. Authorities from Bosnia and Herzegovina gave citizenship to about 700 foreign

fighters despite their suspicious terrorist past (Nezavisne novine, 2005). [4] This threat can have a multiplie negative impact on the security of the states and the region of Southeast Europe as a whole.

First, that part of the population was fighting at many battlefields fighting for their version of Islam, the so-called „Takfiri" Islam (Azinović, 2017). This is a problem because they do not accept a different view of life and faith and consider members of other nations and religions as unbelievers and durable enemies (Potezica, 2007, Azinović, 2007). Such a living attitude and consciousness cannot contribute to a stable security situation, and especially not to a common life with those who do not think the same. It is important to point out that the mujahedins-Islamic extremists have the same attitude towards most of the local population of Islamic religion not practicing their version of Islam (Azinović 2007).

Secondly, the consequence of the arrival and permanent stay of the mujahedin in the Balkan region is the creation of a base of Islamic extremists and spreading of the ideas of radical Islamism. In the period after the war in Bosnia and Herzegovina and in the territory of the Autonomous Province of Kosovo and Metohija, security problems with members of the Islamic extremists from the mujahedin and members of the Wahhabism movement occurred on several occasions (Sotirović, 2014). Countries like Bosnia and Herzegovina, Macedonia and the Province of Kosovo and Metohija, with their weak state functions, unresolved frozen conflict issues and polarized societies were especially suitable for mobilization and radicalization of disappointed citizens of Islamic religion (Azinović, 2017).

It is important to note that Islamic extremists in the region are connected and cooperate with each other very well. Furthermore, links to criminal structures have been registered, first of all for procurement of weapons and equipment, trafficking in illegal goods, etc. Given that the region of the Balkans and Southeast Europe is highly transit route to Europe, it is inevitable the connection with Islamic extremists from the Middle East. There are many reasons for the rise of European concerns about the security situation in Southeast Europe. In addition to passing a huge number of migrants from the Middle East, the Balkan transit corridor is one of the main ways of infiltrating the Islamic state's extremists into Europe. In addition, according to the available security service data, the weapons used in the aforementioned terrorist attacks originate from the territory of the former Yugoslavia (Bardoš, 2015).

An important detail is the fact that the official recognition of certain statesmen of the countries of South-eastern Europe that the Islamic extremists gathered around members of the Islamic state act in the territory of their countries. Thus, in September 2014, Albanian Foreign Minister Ditmir Bushati admitted that the followers of the Islamic state had their camps in Albania. In addition, the statement by the Minister of Security of Bosnia and Herzegovina, Dragan Mektić is also interesting saying that "... in some parts of Bosnia and Herzegovina, the rule of law is not functioning. These communities refuse to recognize the legal order ... ". In this statement, Mektić said: "How is it possible that they have established their guards in Maoca?" (Bardoš, 2015).

The above facts point out the seriousness of the problem of the emergence and development of Islamic extremism in the Balkans and Southeast Europe, regardless of its forms of expression. Five decades ago, the estimated number of Islamic extremists in the Balkans, mostly gathered around Alija Izetbegovic, numbered a few hundred individuals, some estimates suggest that today the number of Muslims supporting some of the basic ideas of Islamic extremists gathered around the Islamic state is potentially five-digit. The results of the poll conducted by the PI Institute in 2011 showed that the population of South-eastern Europe of

4 In November 2004, the Government of Bosnia and Herzegovina charged 15 Bosnian ex-officials with illegally helping around 700 former foreign Islamic fighters in Bosnia gain Bosnian citizenship from 1995-2000.- Nezavisne Novine, January 28, 2005.

Islamic religion is by far the most liberal and most numerous in relation to other Muslims in the world. However, the data show that over 400,000 Muslims from Bosnia and Herzegovina, Kosovo and Metohija and Albania support what is essentially the ideology of the Islamic state (Bardoš, 2015). This is supported by the fact that a significant number of volunteers from the region of these countries and other countries of the region were in the ranks of the Islamic state in Syria and Iraq.

The Republic of Serbia, as part of the Balkan and Southeast region, faces the emergence of Islamic extremism over a long period of time, primarily in the area of the Autonomous Province of Kosovo and Metohija, the area of Presevo, Bujanovac and parts of the municipality of Medvedja and the territory of the Raska region. The above-mentioned territories were in close history the scene of the confrontation between the security forces of the Republic of Serbia and the illegal armed formations and a group of members of the local population of the Islamic religion. In the area of the Raska region, activities of Islamic extremists on the basis of Wahhabism have been registered on several occasions. In March 2007, a co-ordinated action of the members of the Ministry of the Interior on the mountain Velika Ninaja destroyed an extremist group of Wahhabis.

The emergence of Islamic extremism in the Republic of Serbia is related to historical events, as well as to the overall social and economic situation in the country and the region. In addition, the extremely important reasons for the expansion of Islamic extremism in the territory of the Republic of Serbia were the wars that were conducted in Bosnia and Herzegovina and in the territory of Kosovo and Metohija and the area of the Presevo, Bujanovac and Medvedja municipalities. As noted earlier, the war events in the Balkans of the 1990s had basically a national, but also a prominent religious character. Due to the sense of religious affiliation and the need to help the religious brothers, a significant number of citizens of the Republic of Serbia of Islamic faith participated in the war in Bosnia and Herzegovina on the side of the Federation of Bosnia and Herzegovina. This fact points to a problem concerning the proportion of the population of the Islamic religion in the Republic of Serbia according to the official state organs. In this extreme part of the Muslim population, this relationship is unfavourable and they do not observe the Republic of Serbia as their home state, which in practice they show. One of the ways in which disrespect is shown to the state is also the manifestation "March to Haggard", which is held annually in Novi Pazar in September by an extreme part of the Muslim population. The aim of this event is to mark the anniversary of the shooting of local Bosniaks who were charged with war crimes committed during the Second World War. From the aspect of the issue of this paper, it is important to stress that on that occasion a part of local Muslims dressed in green uniforms bear the symbols of Sandžak which indicate their negative determination towards the state of Serbia.

When considering the emergence and development of extremism of any kind, even Islamic in the Balkans and South-eastern Europe, it is necessary to pay attention to the conditions that arise from the general social and economic situation. The common characteristic of the countries of South-eastern Europe in the post-World War II period is the development in the conditions of a communist economy under the influence of the Warsaw Pact political influence. With the collapse of the Warsaw Pact, the countries of Southeast Europe found themselves in a vortex of transition from one system to another. The process of transition has been followed by a series of negative consequences, of which the most important is corruption, crime. There was a sudden stratification of society where the middle class practically disappeared. There remained a small number of extremely rich people and the vast majority of people living in conditions of misery and poverty. In addition, many of the crises that hit the region have affected even more unfavourable economic and social conditions.

CONCLUSION

Southeast Europe is a region characterized by an extremely favourable geographical position. The fact that the most favourable natural passage zone connecting the European and Asian continents stretches over the Balkans and Southeast Europe is conditioned by the multiple importance of this area. Conquers, both from the region of Europe to Asia, and vice versa have affected the specific economic development of the population of Southeast Europe, but also inter-ethnic and inter-religious relations. The specificities that arise from the interweaving of interests of great world and regional powers define the security situation of the region of Southeast Europe. On a number of occasions throughout history South-eastern Europe and the Balkans as its central and key part were the scene of conflicts of varying levels and significance. Conflicts that took place in the Balkans at the end of the last century confirmed the existence of long-lasting and profound problems that affect this space.

The importance of the region of the Balkans and Southeast Europe for the expansion of Islam to the depths of the European mainland is crucial. The breakthrough of Islam to the European continent was carried out in the period of the Turkish Empire. The key consequence of the centuries-old rule of the Turkish Empire in this area changed the ethnic and religious structure and intensified animosity between the Christian and Islamic populations. This hostility is a source of permanent instability of the region, which in accordance with its interests has been using the great and regional forces with the utmost interest of the local population. The unstable environment and inter-ethnic and inter-religious intolerance form the basis for the emergence of various forms of extremism and related security threats.

Islamic extremism in the area of Southeast Europe is based on the understanding of its holders that the countries of the region have an unequal attitude towards the Muslims in relation to the rest of the non-Muslim population. In addition, Islamic extremism in Southeast Europe, on the Balkan Peninsula, extended the hand of Islamic extremism from the region of the Middle East. The Islamic State, as the most famous and strongest Islamist extremist and terrorist organization, has a significant influence on the emergence and development of Islamic extremism in the Balkans and Southeast Europe. The fact that in the ranks of the Islamic state a significant number of volunteers fight from these areas clearly indicates the presence and potential of Islamic extremism. The second problem of volunteer involvement on the side of the Islamic state is the impact on the security situation upon their return to their countries of origin. Therefore, the countries of the region should act very seriously and timely in order to prevent, condemn and avoid the negative consequences that can be caused by returnees from the conflict in Syria.

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CURRENT PROBLEMS IN THE FUNCTIONING OF THE NATIONAL SECURITY COUNCIL OF THE REPUBLIC OF SERBIA

Nenad Kovačević MSc,
Antonio Mak
Mitar Kovač, PhD
Military Academy, University of Defense

„Trust is good, but control is better."
Vladimir Lenin

Abstract: One of the most progressive social processes of the modern world is globalization. A direct consequence of globalization is the denationalization or „voluntarily" reducing the sovereignty of states. This phenomenon is very pronounced in transition countries, and resulted in the change of their national security system. The adoption of appropriate solutions or reforms in the national legislation of the Republic of Serbia was partially completed process design competence, organization, operation and control of the security sector, as the subject of force with special powers, which may imply the rights and freedoms of citizens. Consequently the problem of control there is very broad, expedient and democratic manner, according to the solutions that apply in almost all developed countries. Control both in its scope, conduct and the legislative and executive and judicial power. In addition to the above, the control involved and various other agencies and bodies such as the National Security Council, Coordination Bureau, the State Audit Institution, Ombudsman, Commissioner for Information of Public Importance and Personal Data Protection, as well as other entities. In this paper special attention to the analysis of the functioning and problems in the work of the Council for National Security of the Republic of Serbia, but also offer different approaches to overcome them and proposals for improving the current situation.

Keywords: security system, National Security Council

INTRODUCTION

The last decade of the 20th and beginning of the 21st century was marked by new security trends in global terms. Modern security is mainly from military, spread to other spheres of human activity, primarily on: economic, energy, social and environmental; incorporating security of the individual in one unit - the state`s security. After the end of the „Cold War" reduced the risk of direct military confrontation of global proportions, however, the world is still faced with a number of traditional as well as new challenges, risks and threats to security. Termination of bloc confrontation and the creation of a multipolar world integration processes in the field of security and more intensive economic and cultural cooperation and interdependence have led to a reduction in the risk of conflicts between states, and the possibility of the outbreak of large and uncontrollable crises and conflicts. The transnational character of modern challenges, risks and threats influenced the fact that security is indivisible, where it is obvious that no country is able to independently solve increasingly complex problems of preserving and strengthening national security. Consequently it is necessary to safety in modern conditions seen globally, a national security associated with the security of the near and far environment.

As a direct result of „mundialization" modern world it's more like a „global village". We can say that no country which, for one reason or another is not compromised regardless of the level of development. All societies throughout history have been more or less exposed to threats to a different degree and scope. At first he was threatened their survival, and their socio-economic and even cultural development. Occurrences such as: armed rebellion, terrorism, the expansion of organized crime, corruption, national and religious extremism, drug addiction, the destructive activities of religious sects and many more are just some of the phenomena that threaten the democratic and constitutional order of a state and violate its security and consequently, safety of its citizens. In order to suppress this phenomenon, each country organizes its national security system, which is a very important element in the functioning of the state. Security systems in countries in transition, including the system of national security of the Republic of Serbia, have experienced in the last 25 years of tumultuous and dramatic changes.

The adoption of appropriate solutions or reforms in the national legislation of the Republic of Serbia was partially completed process, organization, operation and control of the security sector, as the subject of force with special powers, which may imply the rights and freedoms of citizens. Consequently the problem of control there is very broad, expedient and democratic manner, according to the solutions that apply in almost all developed countries.

The paper is divided into three parts that provide insight into the basic functioning only reachable for National Security Council (NSC) with suggestion for overcoming the same. The first part refers to the system of national security of the Republic of Serbia (RS) with special attention to the structure, second part refers to the NSC, and its genesis within the national security of the RS. The third and last part is labor relations problems functioning of the NSC, and its relations with other elements of the national security of the RS.

SYSTEM OF NATIONAL SECURITY OF THEREPUBLIC OF SERBIA

Each country has an organized system of security, which confirms that this system is one of its basic constituents of statehood. However, from the very nature of the state, its internal

characteristics, contradictions and challenges, as well as international positions, essentially depends on how the security system be organized and how much will have common features, and how much will be different from the security systems of other countries. Viewed from this perspective, the safety can be „based on purely military protection principles and typically militarized forms state of organization", may take the form of „classical state protection", and there are forms of „a combination of the state or social protection mechanism in systems which are both in certain forms of socialization of security features" (Stajić, 2013, p. 21).

The main objective for which the state and society establish, organize, improve and adapt to the objective circumstances of their security systems contained in an effort to be as effective, thorough and long-term remedy, mitigate and control all actual conditions that threaten their survival and development. The function of security in modern states is much broader than in previous periods, because of diversity and dynamism of threatening factors and complement the activities of certain social undertakings which carry out security duties is not the primary task. In this way the out-dated view the protective function of the state is only achieved through conventional security subjects, primarily the army and police.

National security is not only fundamental, but also the only form of security and organization to be bound for the territory of a nation. The term „national security" was first used in the work of Walter Lippmann „Foreign Policy" in 1943, but the term came into wider use after World War II. National security is primarily linked to the state, that is the foundation of security does not make an alliance or collective, itself a nation state. It is very important feature, it is the ability of the national security to adapt to change. These changes can come out outside and inside. Also here we must emphasize the notion of „controllability". By „controllability" we mean the ability to control the security system by civilian structures. Controllability relies on the fact that national authorities always have full control over the security system and that the system can quickly and effectively respond to the demands placed before it by the political leadership. Controllability is actually a democratic and civilian control of the national security system which is one of the most important achievements of modern Western European democratic social order (Kovačević et al, 2016, pp. 138-145).

The system of national security RS represents a normative, structural and functional unit of elements whose activities achieved national protection of the interests of RS (Ministarstvo odbrane RS, 2009, pp. 27-29). The structure national security system can be considered in two contexts, depending on whether the carrier state functions as elements of the system or the power of the national security and, therefore, the national security system can be viewed in the narrow and broad sense. The structure of the national security system RS is shown in Figures 1 and 2.

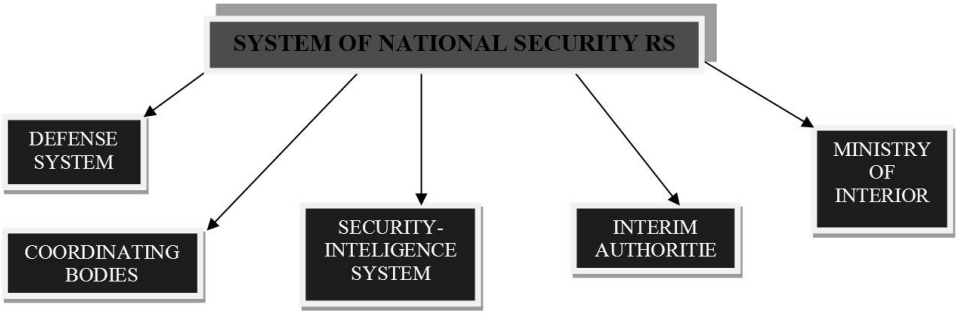


Figure 1. *System of national security of the Republic of Serbia in the narrow sense*

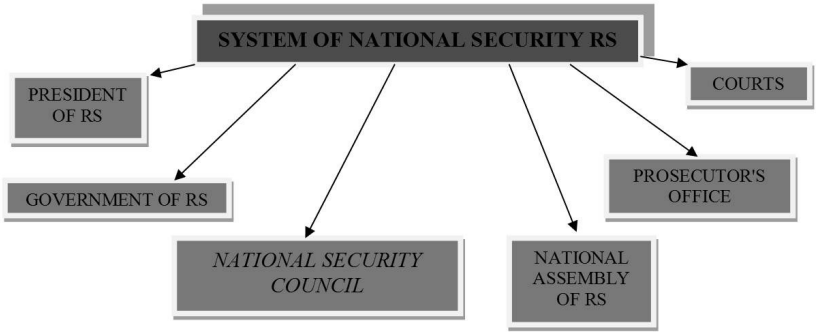


Figure 2. *System of national security of the Republic of Serbia in the broad sense*

The defense system is a unique, structurally arranged the whole of defense forces and subjects whose main aim is to protect the RS from external armed threats (Generalštab Vojske Srbije, 2010, p. 8). The Serbian Armed Forces is basic, the most massive, the best-trained and integral part of the defense system of the RS. The forces of the Ministry of Interior are part of the national security system designed to protect national interests in the field of internal security. Police have the basic forces of the Ministry of Interior.

Security-intelligence system in functional terms into a single unified national security RS subsystem, consisting of: an Informative Security Agency, Military Security Agency and Military Intelligence Agency. The activities of harmonization of security services are carried out by the Coordination Bureau of the security services (Ministarstvo odbrane RS, 2009, p. 27).

The activities in the field of national security are carried out by the state administration bodies, institutions responsible for justice, education, and scientific activities and environmental protection. *Ombudsman, bodies of local self-government bodies in the field of private security, civil society organizations, the media, legal entities and citizens who contribute to the achievement of the objectives of national security.* The system of national security RS managed by State authorities in the capacity of holders of legislative and executive authorities, with the aim of achieve favorable security situation. Functions of the management system of national security are: planning, organizing, ordering, coordination and control. All of these functions are carried out in accordance with the Constitution of the Republic, laws and other regulations.

The system of national security RS achieves its functioning on the basis of respect for the following principles: unity, reliability, efficiency, flexibility, professionalism, constitutionality and legality, continuity, impartiality and political neutrality, openness and control in accordance with the law. These principles of functioning of the national security system are based on the fundamental constitutional and legal solutions, as well as the internationally agreed obligations and standards for which the RS is a signatory or legal successor. Specificity of functioning of some parts of the system's national security is expressed through specific principles established in the normative and doctrinal documents Mijalković, 2011, p. 160).

NATIONAL SECURITY COUNCIL

Institution as the NSC isn`t an unknown practice in the world, both in the developed countries and in countries in transition. In many states there are similar bodies such as the NSC, but their work is regulated in different ways. When we talk about the importance, the

role and position of the NSC of the RS, it should be noted that even before the adoption of the Law on the Security Services, in the Serbian legal system existed similar bodies. Thus, for example, on 11 January 2002 the related Government of RS established the Council for State Security (CSS). Its main task was to coordinate the activities of the entire security sector, including the State Security Service (SSS), which included giving certain guidelines in the fight against terrorism and internationally organized crime. In the CSS, next prime minister, who is also the Chairman and his Deputy – the Minister of Interior, were eight members. Five of them were from the Government (three are deputy prime ministers, ministers of justice and agriculture), then the prime minister's security adviser, while the other two were from the then SSS (Chief of SSS and his chief of cabinet).

However, as we already mentioned, the term „National Security Council" was introduced for the first time at the beginning of 2006. Specifically, on 12 January 2006, the Government of the RS adopted, referring to the provisions of the former Law on the Government, the decision on the establishment of the NSC. That Council had 14 members. Half were high state officials with the then federal level to the state union of Serbia and Montenegro (Minister of Defense, Minister of Foreign Affairs, Chief of Staff of the Army of Serbia and Montenegro, as well as the four leaders from the security services). The second half, from the national level, were: President of the Republic, the Prime Minister, President of the National Assembly, Deputy Prime Minister, the Minister of Justice, the Minister of Interior and the Director of Security Information Agency – new Agency which was made at former SSS.

The competences of this council were to: (1) review the situation in the field of national security; (2) discuss issues related to the operation of law enforcement and security services, their mutual co-operation and co-operation with other relevant government authorities, as well as the cooperation with the bodies and the services of other countries and international organizations; (3) propose measures for improvements in the field of national security and (4) consider the proposals of the competent authorities, law enforcement agencies and security services relating to the improvement of the condition (Lazić, 2014, p. 142).

The new decision of the Government of the RS as of 31 May, 2007 is defined by the NSC as „a coordinating body established for the purpose of directing certain tasks from the scope of several state administration". The said decision was temporary, because the complete solution, at the end of the year, transformed into the Law on the Security Services of the Republic of Serbia. According to this law, the NSC is a working body of the RS, which performs certain tasks and duties in the field of national security.

The functioning of the NSC is regulated by the Law on the Security Services, and other details are defined in the ***Rules of Procedure***. The members of the NSC of the RS are: (1) the President of the Republic; (2) the Prime Minister; (3) the Defense Minister; (4) the Minister of Internal Affairs; (5) The Minister of Justice; (6) The Chief of Staff of the Serbian Armed Forces and (7) directors of the security services. The law stipulates that the NSC has a Secretary of the NSC to attend and participate in the work of the meetings of the NSC and the Bureau for coordinating the work of the security services, but without voting rights. Secretary of the NSC to the execution of the conclusions of the NSC and perform other duties stipulated by the Rules of Procedure and other acts of the NSC. The secretary of the NSC is appointed and dismissed by the President of the RS. The functioning of the NSC is regulated by the Law on the Security Services, and other details are defined in the Rules of Procedure. From the composition of the NSC, it is clear that this is a special working body and control the executive. The law stipulates that the NSC session convened by the President of the RS, and that the proposal of the agenda shall be determined together with the Prime Minister (The Official Gazette of RS, 116/07 i 72/12, article 6).

Meetings of the NSC are chaired by the President of the RS (who always signed conclusions and other acts of the NSC), and if he is prevented from changing by the Prime Minister. Meetings are held as needed, at least once every three months. The President of the RS may, on their own initiative or the initiative of other members of the NSC, invite to the meetings of the NSC the heads of other state bodies and institutions and other persons who are not members of the NSC, too. The final „product", or a document from the meetings of the NSC are the conclusions, signed by the President of the RS (Ibid, article 9).

The National Security Council takes care of national security such as: (1) examine matters in the field of defense, internal affairs and the security services; (2) considers the mutual cooperation of the defense, law enforcement and security services and their cooperation with other relevant government authorities, as well as the cooperation with the bodies and the security services of foreign countries and international organizations; (3) proposes the relevant state authorities measures to improve national security; (4) consider proposals for measures to improve national security by him indicate the authorities responsible for defense, the authorities responsible for internal affairs, security services and other competent state authorities; (5) consider issues from the scope of authority of the state administration, autonomous regions, municipalities, towns and the City of Belgrade, which are important for national security, and (6) address other issues of importance to national security (Ibid, član 5).

Based on these competencies, we recognize that the NSC is the body that takes care of national security and at the same time directs and coordinates the work of the security services, but also that it is unable to make a binding force acts. The law stipulates that the competent national authorities are obliged to cooperate with the NSC, especially in the execution of the conclusions made. If this is not the case, the Secretary of the NSC is obliged to inform without delay, notify the NSC, which can then invite the head of state authorities to take appropriate measures to establish cooperation or made the conclusion of the NSC. If not then the competent national authority does not implement the conclusions of the NSC, it can be assumed that the Secretary of the NSC shall notify the Government of the RS, which is responsible to take appropriate measures against the offender, in order to establish cooperation and carry out the conclusion of the NSC.

In addition to the described composition and functioning of the NSC in order to fully understand and circled the workload of the NSC, it is necessary to look at the work of the Office of the NSC and Protection of Classified Information, which is based on the Law on the Security Services, established by the Government of the RS on 06 February, 2009, the adoption of specific Regulation on the establishment of the Office of the NSC (Office of the Council) which performs professional and administrative tasks for the NSC. Office of the Council manages Director, appointed by the Government of the RS, for a period of five years, at the proposal of the Prime Minister, having obtained the opinion of the NSC. Director of the Office of the Council is a civil servant at the position and responsibility of the Government of the RS and the Prime Minister. The activities within the jurisdiction of the Office of the Council, Director of the Office of the Government shall submit an annual report. The same person may be appointed as the Director of the Office of the Council more than twice. The director of the Office of the Council has a Deputy, who is proposed by Director and appointed by the Government of the RS for a period of five years after obtaining the opinion of the NSC. The deputy Director of the Office of the Council is also a civil servant position, who assist the Director within the powers conferred on him and ordered replaces him in case of absence, death, dismissal, expiry of the mandate of the temporary or permanent incapacity to perform their function (Službeni glasnik RS, 104/09).

PROBLEMS IN THE FUNCTIONING OF THE NATIONAL SECURITY COUNCIL AND SUBMIT THEIR SOLUTION (NEJASNO)

Literature on the work of the NSC is quite scarce, primarily for the reason that its activities are quite mysterious. Accordingly, in the context of the given problem, we need to reflect on some of the „deficiencies" in the work of the NSC, and in this regard, express some of his proposals which together with proposals for a large part of the experts, could be considered in the process of some future legislative interventions directed towards more substantial and comprehensive regulation control of the national security services.

Starting with an analysis of the position of the NSC of the normative-legal sphere, it can be concluded that the legislator Constitution of the RS in 2006, failed to regulate the existence of this body. Thus is omitted and that the Constitution of structures and the system of national security in RS. Competencies that the NSC has certainly support the fact that their existence must be regulated with highest legal act. Instead of being formed by the Constitution, the NSC was established by the Law on Organization of the RS security agencies in 2007. This law, among other things, regulated jurisdiction, composition and operation. This Law regulates the work of the secret services, but the question is whether the NSC`s work should be regulated by this or a special law. On the other hand, however, and in addition, the professional public prevailing view that during the following amendments to the Constitution should anticipate and incorporate provisions relating to the NSC, which would make this very important body of national security has become a constitutional category, and so more received important. The foregoing is particularly important given the fact that the NSC had its work to encompass the entire security sector, and would have to establish a uniform system of coordination.

The Law on the Security Services in the RS in the scope of work of the NSC isn`t explicitly placed the work on compiling the most important strategic documents, especially the National Security Strategy. This competence should be implemented in a wide provision implies that the NSC of the competent state authorities propose measures to improve national security. One of the potential hazards in the work of the NSC lies in the fact that the body in certain circumstances could be beyond any democratic control, given that the Law on the Security Services of the RS does not contain any provision relating to its control. It is very important to be regulated responsibility of the NSC and its members, and that this body does not remain out of control, out of control primarily by the National Assembly of the RS.

In terms of the composition of the NSC, in the professional community also dominated by different perspectives, primarily about who was supposed to be a permanent member, and who isn`t. In this regard, starting from the fact that the democratic and civilian control of the security services in RS, among other things, pots and parliament and the courts, we believe that it would be expedient to structure of body what the NSC to include, as President of the National Assembly, and the President of the Supreme Court of Cassation Court. Also, bearing in mind that under the current legal definition of permanent members of the NSC of Chief of Staff of the Serbian Armed Forces and Minister of Interior, it is reasonable to ask why are not represented the Minister of Foreign Affairs and the police director, too, who would also significantly contribute to the quality of work of the NSC. On the other hand observing the essential function and scope of intelligence-security system, the police as the primary subject of public security doesn`t belong to this system, and it is from this point of questionable membership Police Director in the NSC, where he usually by invitation can participate in the work of the NSC.

Furthermore, looking at the aspect of control powers of the NSC in relation to the security services, but what is also quite debated by the experts, there are opinions that the directors of the security services should be in the NSC's part, but without the right to vote because of the side part very professional public more difficult to assume that they will, as permanent members of the NSC with voting rights, carry out an independent and impartial control, given that it largely refers precisely to their work. The extreme point of view of individuals goes so far as to directors of the security services should be completely excluded from the composition of the NSC as soon as given the scope and content of the work of this body do not agree. On the other hand, there are ideas that in the composition of the NSC should include the representatives of the parliamentary committee for control of the security services, which would significantly enlarge the capacity of the body.

Owing to the above, in order to achieve efficiency and effectiveness, but improving the quality of work, primarily in terms of the strategic assessment of the challenges, risks and threats to the national security of the Republic, we see that the potential composition of the NSC could have up to 15 members, as follows: (1) The President of the RS, which also chairs the NSC; (2) The President of the National Assembly; (3) The Prime Minister; (4) by the Supreme Court of the cassation; (5) The Minister of Foreign Affairs; (6) the Minister of Defense; (7) the interior of tasks; (8) The Minister of Justice; (8) the police director; (9) Chief of Staff of the Serbian Armed Forces; (10) The directors of the security services, and (11) representatives of the parliamentary committee for control of the security services (at least two representatives). Whatever the composition of the NSC, given that it is a consultative, coordinating and directing the body, senior state officials who are its members, or if in some future period, to be, to the authority of its functions need to ensure that the decisions and conclusions that are to be adopted and implemented.

Bearing in mind the characteristics of modern security challenges, risks and threats, and the frequency of their occurrence, it can be said that the procedure for convening and conducting meetings of the NSC should be explicitly regulated. In this regard, the regular sessions should be held in a shorter period of time than that which is provided to current legal provisions (for example, at least once in a month, rather than so far planned for three months), and the NSC could, after joint consideration and decision-making on issues the agenda of the President of the RS, the Prime Minister and President of the National Assembly, bringing acts binding legal force, they would also jointly signed. In addition to depending on the agenda and issues planned for discussion at the meeting of the NSC to improve the work were engaged and relevant experts (experts, scholars, etc.) in various fields, in line with what would be the exception, „burning" topic at meetings of the NSC were discussed and in the long-time present and growing problem in our society in terms of demography, ecology, education, health, etc. In addition, a priority should be the establishment of cooperation between the NSC for other control bodies, primarily with independent state bodies and civil society organizations, which would, among other things, involve the willingness of the NSC to the eventual appreciation of socially responsible and professional criticism by the mentioned bodies in order to further raise our opinion of the good work of the NSC (Lazić, 2014, p. 154).

The Office of the NSC and the protection of classified information, it should be established and special law, not the Government Decree, as is currently the case. In this regard, the Office for its work would be responsible to the NSC, the President of the RS and the Government. Office of the NSC should seem expert and professional team with experience in various industries in the security sector. Such persons should be subject to mandatory and periodic security check. Secretary of the NSC, according to this proposal, it was required to attend only the meetings of the NSC (and not the Bureau for coordinating the work of the security services), as well as to ensure the execution of the conclusions made.

CONCLUSION

The emergence of the NSC is justified in connecting the need to be in one place gathered the main decision-makers in the field of security and the coordination to be established by the elements of the sector. Its establishment rounded off the security system in the RS, but it also raised the level of democratic and civilian control over the sector, and its actors. The NSC exists in many other countries of the world and being in charge in a powerful body, primarily because it brings together people who manage the security sector in a country.

On the basis in all of the above, we can conclude that the NSC is responsible for the national security of the RS, but at the same time directs and coordinates the work of the security system of the RS. The legal position of the NSC is such that this isn't a body that has the power to make legal acts with a binding force. Although the supervision and control of the implementation of the conclusions of the NSC exercised in such a way that all state authorities have an obligation to comply with their constitutional and legal position cooperate with the NSC on matters within their competence, primarily carrying out its conclusions.

The analysis of the specifics of work processes and controls conducted by the NSC, as well as characteristics of those involved in the process and who are its bearers, opened up certain issues in terms of the shortcomings of normative-legal regulations and the need to regulate them within the existing national legislation. While the existing legislative provisions are good and showed that the NSC and in this way works successfully, as in the RS wasn't operational surprises and that the NSC quickly responded to any problems that are in the meantime incurred in RS and/or its environment it would, for example, to a significant extent could fix the adoption of the Law on the Office of the NSC for national security and protection of classified information, which would replace the existing Regulation of the Government, or even the regulation of the legal position of the NSC of the Constitution. In addition to the above, the amendments to the current legislation are necessary, because it is impossible to work under out-dated procedures and rules, and should strive for periodic a redefinition of national legislation in this area, primarily based on monitoring of security trends.

Mode of the NSC has significantly improved over the period of its establishment, but remains open and still unresolved question of competence and expertise of the members of such a body, which is of enormous significance for the country. We note that this issue has not so much been the object of attention of experts, as a way of work of the NSC or any doubts about his competence, we believe that this is primarily due to the nature of the work that the NSC deals with. Therefore, if we want to improve the inspection process by the NSC, an absolute priority in the coming period should be innovating existing normative-legal framework. In addition, a priority should be the establishment of cooperation between the NSC for other control bodies, primarily with independent state bodies and civil society organizations, which would, among other things, involve the willingness of the NSC to respect criticism by the aforementioned bodies.

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COUNTER TERRORISM AND MIGRANT CRISIS IN CONTEXT OF CRIMINAL LAW COOPERATION BETWEEN COUNTRIES OF THE REGION[1]

Branko Leštanin
MoI Republic of Serbia
b.lestanin@gmail.com

Vanda Božić, PhD, Scientific Associate
Faculty of Law, Department of Criminal Law, Zagreb
vanda.bozic@pravo.hr

Professor Željko Nikač, PhD
University of Criminal Investigation and Police Studies, Belgrade
zeljko.nikac@kpa.edu.rs

Abstract: The Western Balkans is a region that is at the same time one of the migrant routes from the war-affected areas to the EU countries. Recent decades in the world have seen an increase in the number of terrorist attacks, which culminated in the attack on the Twin Towers of the 9/11 in the United States. In major cities across Europe, there has been a series of bombings and other attacks, particularly with the onset of the major migrant crisis in 2015. Armed conflicts in the areas of North Africa and the Middle East are still the main generator of the refugee wave, with new terrorist attacks. Although the increase in the number of attacks and migration leads to the link of research, they say the opposite. An effective counter terrorism and the elimination of the consequences of an attack implies, at the same time, the reaction of states on the national level, as well as international criminal law cooperation between states and organizations at the regional and global level. In the first part of the article, the authors briefly referred to the (un)defined notion of terrorism, then examining migration on the route of the Western Balkans and ultimately pointed to the legal and institutional mechanisms of criminal law cooperation of the countries of the Region in counter terrorism.

Keywords: Western Balkans, EU, terrorism, migration, criminal law cooperation.

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INTRODUCTION

Armed conflicts in the countries of North Africa (Libya, Eritrea, etc.) and the Middle East (Syria, Yemen, Afghanistan and Iraq) were a generator of the refugee wave, with which, in addition, there are new terrorist attacks. Since the 1990s, it has been known that extreme and radical preachers of jihad appear among asylum seekers from the Middle and Far East countries. Notable examples included Abu Qatada in London, Sheikh Anwar al-Shaban in Milan, Abdul Rahman Ayub in Sydney and Mullah Krekar in Norway. Fears that terrorists are deliberately infiltrating refugee flows further escalated in the wake of the November 2015 terrorist attacks in Paris. At least two of the attackers are believed to have entered the European Union via Greece, posing as asylum seekers (Mullins, 2016:24). In response to terrorist attacks and the elimination of their consequences, not only was the reaction of the states on the national plane, but also the international criminal-law cooperation between states and organizations at the regional and global level. The Western Balkans is a region on the route of migrant path from the war zones to the developed countries of the EU, so the mutual cooperation of the states is an imperative of the survival and development of a modern society. In addition to criminal cooperation between states, cooperation between security services, border police, non-governmental sector in the exchange of actionable intelligence on migrants is also necessary from the aspect of proactive action in combating the emergence of terrorism

Historically viewed terrorism occurs as a human civilization, even before Christ's birth, when the assassinations of political figures of that time were glorified. Attacks in Persia and Assyria, occurring during the 11th century, caused fear and panic throughout the Islamic Empire. During the French Revolution in the 18th century, Robespierre used terrorist tactics to destroy a large part of the French aristocracy, about 40,000 people, most of which ended up on the guillotine (Jovanović, 1990:139). The first terrorist act can be considered the murder of the tyrant Athena Hiparh, in 514 BC carried out by Harmody and Aristogeoton, who have since become the first Republican *martirers*. During the American Revolution, terrorism was being used against the British and their sympathizers in the ranks of the colonists. In the late decades of the 19th century and the beginning of the 20th century, in Tsarist Russia we recorded terrorist activities. Most of the terrorist groups that existed during the first half of the 20th century were guided by the idea of the liberation from colonial slavery, that is, 'the struggle for national liberation'. Since the end of the WW II, terrorism has become an important factor in subversive activity in many newly formed states (Živaljević, Jugović, 2014:86-87).

Serbia was also exposed to continued terrorist activities after WW II by various terrorist organizations, especially anti-Yugoslav immigration, and more recently targeted by Albanian terrorist organizations, which destabilized the security situation in Serbia and the region. The additional complexity of the situation in Serbia was inevitably influenced by the migrant crisis, which demanded great efforts in engaging additional resources of the security and police services (human, financial, material, technical, etc.). By the end of the 1960s and early 1970s, terrorism was mostly talked about as the problem of the internal security of the states in which it emerged. Sometimes terrorist attacks had a wider regional character. However, by increasing the number of terrorist attacks and the number of victims of these actions, then using the Internet and social networks for the needs of terrorists, terrorism is increasingly being talked about as a global problem of civilization.

Until the 1970s, terrorism was seen as the work of individuals and small groups and insisted on the establishment of bilateral relations, and in that sense the obligation of states to deliver the perpetrators of a terrorist attacks to a state affected by the act, and later, under the auspices of the United Nations (UN) and the Council of Europe (CE), creates a somewhat broader and more comprehensive system of norms for the suppression of terrorism, in which

it does not insist on extradition, but also on the obligation of states that they will not in any way help and support terrorism (further readings in: Dwigans, Schmitt, 2011:86-102).

REVIEW OF THE APPREHENSION AND CHARACTERISTICS OF TERRORISM

The term 'terrorism' originated during the French Revolution (1789-1799). Those who advocated the revolution and by its realization sought to establish the order of terror, which was most commonly realized in the period from 1793 to 1794, were marked by English theoretician Edmund Burke as terrorists. Crenshaw & Pimlott give four views to terrorism: 1) academic (theoreticians and scholars); official (Goverment and their institutions); 3) public view (attitudes of citizens and community) and 4) terrorists' view (Crenshaw, Pimlott, 2015:16-20).

There is no consensus on the definition of terrorism among scholars and terrorism researchers (See Ramsay, 2015:211-228; Krstić, 2016:288-301). There are numerous definitions of terrorism in the literature, depending on the authors, legal (law) schools and the socio-political system from which they originate. Definitions can be divided into general (doctrinal, political), specific (criminalistic) and mixed (Milošević, 1988:337-347). It is interesting to note that in the US, every law enforcement agency dealing with the problem of terrorism has its own definition (further readings: Schmid, Jongman, 1988:32-33). Terrorism is broadly defined as politically motivated violence perpetrated against non-combatant targets by sub national groups or clandestine agents (Perl, 2010:31). If the international community could agree upon a legal definition of acts of terrorism as a 'peacetime equivalent to war crimes' a more uniform treatment of terrorists would become possible (Crenshaw, Pimlott, 2015:16-21). In foreign literature the most mentioned is the definition by which terrorism is an anxiety-inspiring method of repeated violent action, employed by (semi-)clandestine individual, group or state actors, for idiosyncratic, criminal or political reasons, whereby – in contrast to assassination – the direct targets of violence are not the main targets. The immediate human victims of violence are generally chosen randomly (targets of opportunity) or selectively (representative or symbolic targets) from a target population, and serve as message generators. Threat- and violence-based communication processes between terrorist (organization), (imperilled) victims, and main targets are used to manipulate the main target (audience(s)), turning it into a target of terror, a target of demands, or a target of attention, depending on whether intimidation, coercion, or propaganda is primarily sought (Schmid, Jongman, 1988:28). The greatest number of definitions of terrorism and appearance forms include elements of violence (method), citizens and government (goals) and provoking fear and deregulation of political or social changes (goals) (Božić, Nikač, Leštanin, 2017:591).

From the perspective of law enforcement agencies, the most important definition is the definition listed in the legal acts of a state or an international organizations (EU, UN, OSCE and similar). In addition to the actions covered by the Hague and Montreal Conventions, the European Convention on the Suppression of Terrorism, terrorist acts are implied, and those acts that can be assessed as a serious offence involving an attack against the life, physical integrity or liberty of internationally protected persons, including diplomatic agents; an offence involving kidnapping, the taking of a hostage or serious unlawful detention; an offence involving the use of a bomb, grenade, rocket, automatic firearm or letter or parcel bomb if this use endangers persons; and an attempt to commit any of the foregoing offences or participation as an accomplice of a person who commits or attempts to commit such an offence (European Convention on the Suppression of Terrorism, 1977)[2]. Observing the region of the

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Western Balkans, all countries in their legal acts regulating crimes have prescribed a set of felonies pertaining to terrorism.

The elements of terrorism are **fear, violence, goals and motives**. The most important element is fear as a psychological phenomenon aimed at disturbing citizenship and challenging public reaction. Violence implies the use of physical force or serious threats with the aim of causing injury and is a basic method of terrorist behavior. Terrorist targets are primarily political and are about to lead to political changes through violence. Reasons for the execution of terrorist acts are different, today there are ideological motives closely related to political goals (Božić, Nikač, Leštanin, 2017:590).

The main characteristic of terrorism is that terrorist acts are with primary political goals, while assets that use terrorists are essentially criminal (Nikač, 2015:55-63). The political component of terrorism, which often serves as a 'weapon' for resolving political disagreements and contradictions in a society, tells us that contemporary state relations are far from being able to resolve conflict situations in a way that is defined in the international community under the cover of declarations, charters and conventions (Krstić, 2015:3012). Most authors who have studied the phenomenon of terrorism believe that the political component is one of the essential elements of terrorism. This can be seen in bilateral agreements, then in the legislation of many countries, as well as in the documents of repressive state authorities (Gaćinović, 2015:171). We conclude that terrorism is undoubtedly one of the most severe manifestations of political crime and one of the greatest dangers in contemporary society.

MIGRATION AND WESTERN BALKANS COUNTRIES

Migration and migrant flows have been known since ancient times because people have always sought better resources (water, hunting grounds, etc.), a better standard of living, generally speaking a better life. In the context of this article, migration can be understood as a process of moving from one place to another that should become central to its life activities, i.e. professional, economic, cultural, religious, social and other relationships.

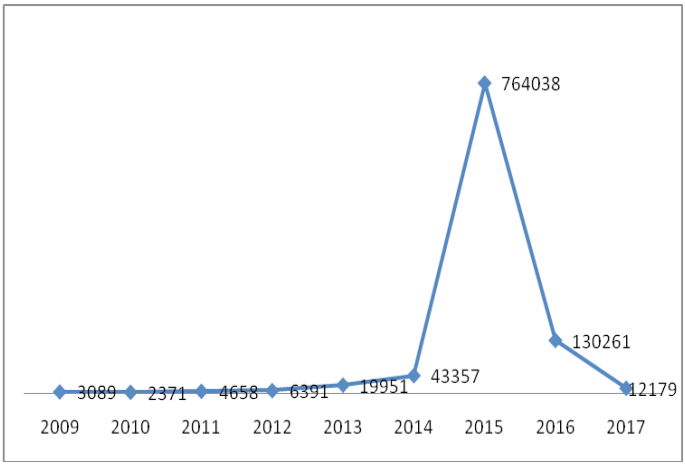


Chart 1: The number of illegal EU border crossings - route "Western Balkans" (Source: Frontex[3])

3 https://frontex.europa.eu/along-eu-borders/migratory-map/ accessed 25.05.2018.

As we have already mentioned, the main causes of major migration towards the EU are war conflicts on the territory of North Africa and the Middle East, as well as poverty in those regions, because it is in the nature of man to avoid accidents or any cause to endanger security (see: Simeunović, 2017:32-35; Lečić, 2017:97-102). According to the main indicators, the problem of migration decreased during 2017 compared with the previous period. The most critical year was 2015, when it was the largest influx of migrants in general (Chart 2) and on the route 'Western Balkans' where Serbia is located (Chart 1).

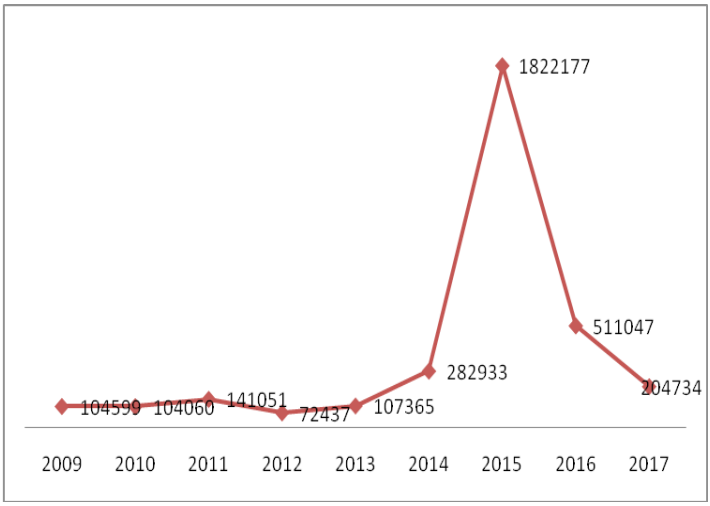


Chart 2: The total number of illegal EU border crossings (Source: Frontex)

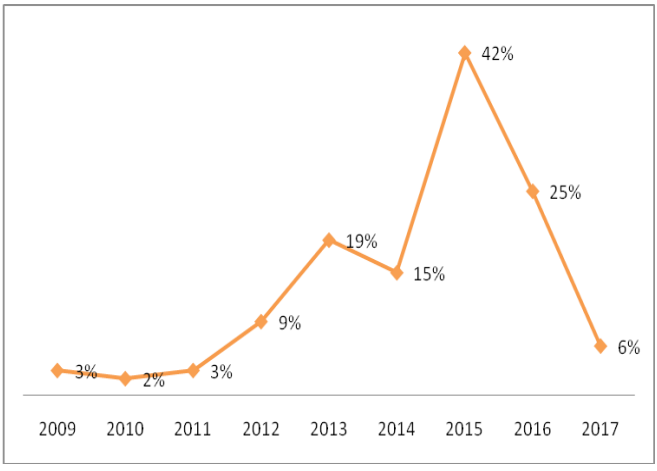


Chart 3: Participation of the route "Western Balkans"
in the total number of illegal EU border crossings (Source: Frontex)

As we can see from the presented data, the tendencies of illegal crossings of the EU border on the route 'Western Balkans' fully correspond to the tendencies we see in the total number of illegal crossings of the EU border on all routes (sea and land borders of the EU). What

has to be noted is that as early as 2012, the 'Western Balkans' route is gaining in importance because there is an increase in participation in the total number of illegal crossings of the EU border. Like all other indicators, the highest participation is recorded in 2015 when 42% of the total number of illegal crossings was made on the 'Western Balkans' route (Chart 3). In 2016 and 2017, the participation of the route 'Western Blakan' marked a significant decline as a result of the EU-Turkey agreement on the closure of the migrant route in Turkey.

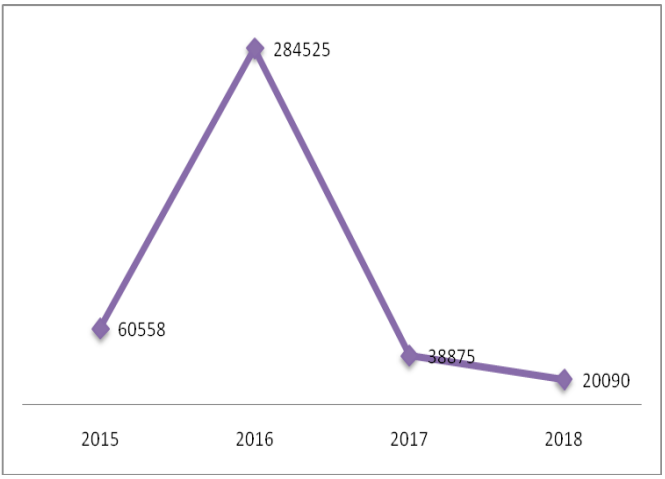


Chart 4: The total number of illegal crossings to the EU borders for the first three months of the last four years (Source: Frontex)

Comparing in 2018, the total number of illegal crossings of the EU border has marked a significant drop compared to previous years. The more critical period was in the first three months of 2016 when the highest number of illegal crossings was recorded (Chart 4).

Freedom of movement and the right to protection (asylum) are human rights that are inviolable and guaranteed by both international and internal normative legal acts. Adding to this the great openness and democratic mentality of the states of the Western world as well as wealth, then it becomes clear to us why migrants choose to go to those countries. According to Eurostat data (Asylum statistics[4]), the majority of asylum seekers themselves come from Syria, Iraq and Afghanistan who are also affected by war, but at the same time the countries in whose territory the Islamic State (IS) operates, which can use migrant routes for sending their fighters and carrying out terrorist attacks. In 2015, the EU received over 1.2 million applications for asylum (first-time applicants), which is more than double the number in 2014. Germany, Hungary, Sweden and Austria received about 2/3 EU applications for asylum in 2015, while Hungary, Sweden and Austria are the largest recipients of asylum requests per capita (Asylum statistics).

The countries of the Western Balkans, excluding Croatia, are not the members of the EU yet and thus do not represent the ultimate destination of migrants, but only the transit area. At the same time, this is a problem for these countries given the border with the EU where illegal border crossings are very pronounced, as well as the fact that they are not part of Frontex[5] which would make their work with migrants considerably easier. Therefore, they must

4 Available at http://ec.europa.eu/eurostat/statistics-explained/index.php/Asylum_statistics accessed 14.05.2018.

5 *Frontex* is the acronym of French title *Frontières extérieures* and represents the European Agency for Border and Coast Guard, whose task is to promote, coordinate and develop the management of the

have intensive cooperation with all EU agencies responsible for migration affairs in order to promptly take appropriate measures. In addition to the IS fighters inflitrated among the refugees, there may also be a process of radicalization and recruitment during migration through the presentation of content through a mobile phone, tablets, sharing of publications, but also through a 'live word' or the preaching of 'extreme' imams. If we have in mind that 82% of asylum seekers in the EU are under 35 and that 52% are men the Western Balkans present the EU's 'last defense' from the wave of migration and hence terrorism (Asylum statistics). In order to prevent radicalization and recruitment processes on the migrant route, the law enforcement agencies together with the NGOs must conduct detailed interviews with migrants to 'open their hearts and souls' and get relevant information on the appearance of terrorists among refugees. This is a great challenge, bearing in mind the religious beliefs, culture, mentality and other character traits of each migrant (as dictum says '*One man's terrorist another man's freedom fighter*').

Historically observed large migrations and terrorism are in some way linked (see in: Lečić, 2017:108), but refugee terrorists are an exception to the rule. There is a very small number of jihadist terrorists operatively working in the West. Those who came as refugees do not have to be involved in terrorism before they arrive until there is evidence of 'sleeping cells' (Mullins, 2016:25). It should be noted that, taking into account the research (see: Ellis, Pantucci, Zuijdewijn, Bakker, Smith, Gomis, Palombi, 2016:33-41), the likelihood of increasing terrorist attacks by *Lone Wolf Terrorists* (See Beydoun, 2018:1213-1244; Feldman, 2018:39-60) represent a much greater challenge for law enforcement agencies with regard to their characteristics (loneliness, lack of material nature of engagement, absence of support or/and communication with terrorist organizations, etc.). As a reason for this, we see the possibility of dissatisfaction of incoming migrants with life in Western Europe, the possibility of radicalization via the Internet, the functioning of right-wing organizations, the possession of military training, the availability of means of execution (weapons, explosives). It is therefore necessary that the countries of the Western Balkans, as so-called 'first action measures', carry out the identification and registration of migrants in order to record the data in a single database that can serve for further monitoring of security interests.

INTERNATIONAL CRIMINAL LAW COOPERATION

The legal sources of international criminal law cooperation derive from the legal rules and the principles of international law and international relations established by the Charter of the UN and other documents that form the general legal and institutional framework of international criminal law relations. Forerunner of international cooperation institutional forms between states and police organizations were international conferences held in Frankfurt (1846), Brussels (1847) and Stockholm (1878) (Nikač, 2015:25). International police cooperation was intensified after the anti-archist conference in Rome in 1898, which followed a number of terrorist actions in the Europe. A special resolution was adopted at the conference, which envisages the establishment of national anti-anarchist units, while the international plan envisages the cooperation of police organizations and the exchange of information.

International criminal law assistance can be understood in a broader and narrower sense. In a broader sense, international criminal justice assistance includes any action or measure

European external borders in accordance with the EU Charter of Fundamental Rights and the concept of integrated border management. The Agency also monitors border situations, helps border authorities to exchange information with member states, assess vulnerability to assess the capacity and readiness of each member state to face challenges at its external borders, including the pressure of migration. More available at https://frontex.europa.eu/about-frontex/mission-tasks/ Accessed on May 14, 2018.

in progress, during and after the criminal proceedings of a state authority in order to achieve cooperation in a specific criminal matter (e.g. witness examination, evidence collection for the needs of the proceedings, transfer of criminal prosecution, execution of a foreign criminal conviction). In the narrower sense, international criminal justice includes only part of the legal aid and consists of providing assistance to competent foreign authorities during the course of the criminal proceedings. This type of aid is known in the doctrine as 'small' or 'primary' criminal justice assistance (Nikač, 2015:232). In operational terms, the international criminal cooperation of the states in the field of prevention and suppression of all forms of crime, is realized as: international judicial cooperation (criminal justice assistance) and international police cooperation (Gajić, Spasić, 2014:146).

Observing from the aspect of the quantity of international criminal justice cooperation, three forms of cooperation are distinguished: 1) *bilateral* - implies the exchange of information and contacts of liaison officers, representatives of states, departments and judicial bodies; 2) *regional* - i.e. operation on continents through the existing structures - CE, EU, EUROPOL, EUROJUST, Schengen treaty, the Organization of American States, etc.; and 3) *multilateral* - under which we mean acting through the existing organizations - INTERPOL, UN, OSCE, NATO and others.

The jurisdiction of a particular state to initiate the procedure of international criminal justice is determined on the basis of several principles that must be fulfilled: *the territorial principle, the citizenship principle, the universal principle, the protection principle and the personal principle*. The territorial principle implies that each state investigates perpetrators of felonies (in this case, terrorists) committed in the territory of that state, which is also provided for in the basic criminal legislation. The principle of citizenship means that each state has the inviolable right to prosecute its national who has committed the felony of terrorism in its territory, wherever it is. Under the principle of universal jurisdiction, the jurisdiction of a state is established regardless of the fact that a terrorist is not a national and is out of reach of state authorities, nor does the felony of terrorism have been committed on its territory. Observed from the aspect of the counter terrorism, piracy and international crimes in the theory and practice of international relations, this principle is very important because it is applied in the case of a terrorist in Afghanistan by the US. The main protagonist of the so-called 'protection principle' are the US and imply that there is a certain degree of threat to national security. 'Threat to National Security' is a very broad concept that makes this principle very controversial. The US, in addition to counter terrorism, have also been prosecuting drug cartel chiefs from Mexico and Colombia, for they believe that 'organized crime is jeopardizing US national security'. Responsibility for conduct abroad that hurts one of its citizens can be exercised on the basis of the principle of passive personality. The use of this principle, in the previous period of the line, is gaining increasing recognition in the case of terrorism (Dwigans, Schmitt, 2011:96). In particular, it is sufficient for a national of a particular state to be the victim of a particular felony or/and criminal proceeding abroad that his home state establishes jurisdiction for the commission of this felony. This principle applies in particular to the great powers that possess sufficient international authority and use diplomatic pressure to arrest and condemn the perpetrators of the crime.

In order to improve international criminal law cooperation, closer interconnection of Member States and the adoption of common rules in the field of criminal justice, the CE adopted the European Convention on International Legal Assistance in Criminal Matters, which established the following forms of assistance: a) court inquiries, b) delivering the judicial acts and files, c) access to the court of witnesses, expert witnesses and accused defendants, and d) delivery of data from court files (European Convention on Mutual Assistance in

Criminal Matters[6]). In addition to regular forms of assistance, the Convention also provides for some specific forms of international criminal justice assistance, such as providing information regarding (criminal) proceedings (Nikač, 2015:234). This information may also refer to the aforementioned information taken during the procedure for identifying and registering migrants who are malnourished in a single database to be used in a further (criminal) procedure.

Although the Convention has been ratified by all CE Member States, it has contributed to the unification of extradition law, however, it is important to draw attention to certain shortcomings: it prescribes the possibility of refusing the extradition of its own nationals and perpetrators of political crimes, leaving the regulation of the extradition procedure to national legislation, and provides for the possibility of reserving certain provisions of the Convention, which in practice led to the bilateralization of the Convention (Hržina, Rošić, Stipišić, 2012:845). From the aspect of the counter terrorism, the subject of discussion is precisely the possibility of refusing to provide criminal assistance if it is a political offense. Terrorism as a felony, as well as all other crimes that belong to a group of criminal offenses related to terrorism (aiding, financing, etc.) in most of the criminal justice systems are classified into political felonies. Therefore, countries that have a political interest not to cooperate in the counter terrorism have an excuse that is in accordance with the Convention. The possibility of placing reservations on certain provisions of the Convention also leaves a wide margin for countries that are latently helping and funding terrorist activities.

As a temporary solution to this problem may be bilateral agreements between states. Thus, the Republic of Serbia has concluded bilateral agreements with Austria, Italy, Turkey, Cyprus and Albania on cooperation in the fight against terrorism, including cooperation in the field of organized crime, the suppression of illegal trafficking in drugs, weapons, people and other forms of crime. The Republic of Croatia has the same treaties with other countries, which has concluded a large number of international agreements on cooperation in the fight against terrorism, organized crime and other areas with almost 40 different states (Božić, Nikač, Leštanin, 2017:594-595).

As a systemic solution, *de lege ferenda*, we see the complete abolition of the possibility of reserving to the Convention reservations by states in the course of accession and ratification, and in particular it concerns crimes in the field of terrorism, organized crime and corruption. Also, when it comes to political crimes, terrorism and all other crimes related to terrorist activities must be exempt from political connotation. In this way, it would become crystal clear which countries really and sincerely advocate effective counter terrorism, and which are only declaratively advocating this fight.

CONCLUDING CONSIDERATIONS

Confronting terrorism as a global problem requires much more organized and broader social, political, normative determination and definition, but also determining the cause of its manifestation. The counter terrorism must be in accordance with internationally recognized principles and rules. Preventing and combating forms of terrorism as a pathological phenomenon cannot consist only of repressive methods and penalties, the operation of police or/and judicial authorities. More attention should be paid to the causes as well as to the prevention of this danger and include all segments of society.

Although individual cases of infiltration of the IS fighters among refugees or/and the conduct of terrorist attacks by migrants have been recorded, it cannot be noted that migration

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will influence the increase in the phenomenon of terrorism in the Western Balkans. This can happen in the rest of the EU, but more as an individual act as a result of self-radicalization than as act organized and orchestrated by a terrorist organization.

In contemporary conditions, specialized authorities must reveal terrorist threats in preparation, through conspiratory penetration into terrorist organizations and groups, they learn about planning terrorist actions and their bearers. Terrorist organizations and groups can only confront the more mobile, more efficient, better trained and, above all, better informed specialized police/judiciary services. In addition, effective and permanent cooperation between law enforcement agencies (and judicial authorities), both with one another and with citizens, can lead to the identification of individuals who have been radicalized and their timely arrest.

Although countries are aware of the threat of terrorism and the necessity of an effective counter terrorism, they still 'jealously' guard the part of their sovereignty regarding the adoption of certain international rules and cooperation with other countries. In addition, we had the opportunity to see how EU member states behave in conditions of a migrant crisis (border closure, wall construction, human rights violations, etc.). In the future, states must give their full contribution in mutual cooperation through the exchange of *actionable intelligence* and other forms of international (criminal) cooperation.

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CONCEPTUAL APPOROACH IN CREATING SECURITY POLICY OF THE REPUBLIC OF MACEDONIA

Marjan Gjurovski, PhD
mgjurovski@fb.uklo.edu.mk
Snezana Nikodinovska Stefanovska, PhD
Faculty of Security, Skopje, Republic of Macedonia
snikodinovska@fb.uklo.edu.mk

Abstract: Security policy is a very complex activity and it is difficult to determine which policy is successful and which one is not. From the multitude of factors which influence the success of developing the security policy in the first place should be put those relating to the objective detection of security-related phenomena, mutual cooperation and coordination between the security institutions. Those responsible, competent and obliged to develop security policies should have at their disposal security information timely and objectively. It will enable them to make real security assessment, to determine the security situation and to predict future security events.

A successful or good security policy is the one that is able to resolve the security issues with minimal resources and minimal damage. The contemporary economic, political, legal and cultural conditions in the world determine the need for concerted security policy at world level, and also at the levels of United States or regions, as well as the national state.

The content of the security policy is determined or is a "product" of the real situations and the real life in the particular state, region or in the world. It should be in the function of the society, the state and the citizens so as to provide for safe improvement of the overall community relations.

Keywords: *security policy, risks, threats, security system, security, concepts, theories*

By declaring its independence and sovereignty on September 8, 1991 the Republic of Macedonia began gradually to build its security policy. During the first years of the independence it was talked about an independent system of national security, were built the institutions of the state and on the other hand there was no one to work on preparation of the basic documents or the construction of the security policy. Moreover there wasn't any strategic document that treats security conditions. The security policy was an expected concept in the following period which was moving in parallel with the process of building the security system of the Republic of Macedonia. The country began building its own autonomous modern system of security based on the new challenges and threats toward the new independent country. They opened many processes of profound and fundamental changes in all areas of life: economics, politics, health, education, culture, foreign policy, defense, security and so on. Given that the Republic of Macedonia has a very short 'career' as an independent country and that it hasn't worked previously on building its own security policy and if we take into account

the relative lack of experience and professional knowledge in state institutions, bodies and individuals engaged on questions from the domain of security, it initially was a potential source of problems and a factor indirectly jeopardizing the interests of the country.

After its independence in 1991 the Republic of Macedonia didn't own any specific model or plan for creating a strategic-doctrine framework. The strategic documents in that period were not created according to a basic plan but every document was created as a result of specific reasons and needs for its creating, because of which very often had a reaction from the environment. But during the 1990s and early 2000s there was always a consensus of the general public about the need to develop and adopt such strategic - doctrinal framework and about the implementation of reforms and policy execution, so these years are called decade of strategies.

The adoption of the first strategic documents started proclaiming the need of a common position for addressing the security issues with one comprehensive document that would summarize the joint action of all stakeholders for achieving the security of the country.

The first strategic documents adopted in the Republic of Macedonia are the White Book for defense adopted in 1998 and the Strategy for defense adopted in 1999. Initially it appeared that the hierarchy of adopting strategic documents by importance hadn't been preserved because the comprehensive strategies that would lead the whole security system as the Ohrid Framework Agreement and the National Concept for Security and Defense were passed in 2001 and 2003, followed by the adoption of the Strategic Defense Review and strategies for police and border management, surpassing the gap caused by the absence of comprehensive strategies which in turn will be a guide for the other sectors. Another comprehensive document that was adopted is the National security strategy. Given that the first developed documents were the White book for defense and the Strategy for defense which should actually emerged from the National Concept for security and defense and the National security strategy, their defining and adoption opened the need for updating virtually all strategic - doctrinal framework of the state.

The process of developing a strategic-doctrinal framework in the country can be divided into two periods. The first period is the decade of the 1990s, characterized by taking inadequate procedures for initiating the creation of a strategic-doctrinal framework. The second period is the period just before the end of this decade and the first years of the 21st century, attesting the favorable domestic and regional environment to pursue development and creating them.

In the 1990s, the country was faced with inefficiencies in the functioning of decision-making on security, the inadequacy of the human factor and the conceptual and managerial incompetence to deal with problems of internal social, economic and political changes, which seriously affected the development of strategic - doctrinal framework that resulted in failure for its establishment.

At the end of the 20th century, however, the political and security environment in which the frame was developed was transformed. The crisis in the former Yugoslavia was over, the security vacuum in the 1990s no longer existed and the country began to build aspirations for Euro-Atlantic integration. These changes forced the country to invest effort and resources in developing the strategic-doctrinal framework. The emergence of a stable, reformist oriented majority that came to power in the late 1990s and early 2000s, allowed implementation of programs for creation of strategic - doctrinal framework. In addition, what is also very important, a public support for this process was obtained.

The sources on which was based the process of preparation of the strategies include: the Constitution, laws and regulations; similar strategies to "benchmark" countries (such as NATO and EU member states) and international organizations; documents on defense and security policy at the national level; personal knowledge and experience of the creators;

Internal estimates about national values, interests and requirements; conclusions and recommendations of research reports; theoretical national and international literature; similar documents published in other institutions of international, regional and national; advice and recommendations from international and bilateral experts and others.

When Macedonia began with the first generation of reforms in the security area, just after its independence in 1991 which included the establishment of new institutions, structures and chains of accountability in the security sector and appropriate structures for democratic control over it, there were no security strategies. The country set the basic principles and structures for oversight of the security sector, authorizing the parliament to control and approve the budgets of the security system. All this happened as a result of the overall democratization of all processes in the country. However, with the later changes in the environment became obvious that more reforms were needed and they were called second generation of reforms in the security area. The second generation of reforms referred to further consolidation of the democratic control of the armed forces, strengthening the procedures of transparency and accountability, improving the structures and institutions in terms of implementing policy and improving the efficiency and effectiveness of work of the security system, a wider involvement civil society and the creation of a strong civil defense and security, to improve the ability for effective border protection, reform of intelligence agencies, disarmament, demilitarization and reintegration, maintaining judicial reform and judicial reform and the fight against corruption and organized crime in the security system.

The key feature of the security strategies was to provide political basis for reforming and professionalization of the security system. This involved defining the missions, tasks and structures of the actors in the security system in accordance with the new environment, new challenges and priorities.

What is important to be emphasized is that the security strategies beside the way in which they were initiated and the objectives they achieved, they had its merit having on mind the hard period, the period of transition during which the Macedonian society and the security institutions were developing. The real question that Macedonia was faced with was if the Government would be guided by the logic for specific security reforms in developing strategies or logic assessment of current circumstances. Security strategies guided by the overall security reforms will greatly serve the overall security reforms and will form a solid basis for the continuation of reforms in this area. The very concept of reform of the security system recognized the need of strategies as a further guide for the reforms. The changes that had to be taken in the security system couldn't be introduced overnight. Not only changes of the procedures and legislation were needed, but also changes of the attitude and the mentality of the people were needed. This meant that the changes should take place slowly, including all levels of the security sector reform agenda (Strategic Defense Review, Ministry of Defense of the Republic of Macedonia, 2004).

STRATEGIC DOCUMENTS

The strategic-doctrinal framework of the Republic of Macedonia currently includes the following national documents: National Concept for security and defense; Strategic Defense Review; Defense Strategy; White Paper on Defense Reform Strategy in the police and the National Strategy for Integrated Border Management and the Ohrid Framework Agreement. There is significant progress in the development of this framework in the country based on the placement of the new hierarchy of decision strategies with the adoption of the National Concept for Security and Defense in June 2003 and the National Security Strategy in January

2008. Significant progress was made with the Ohrid Framework Agreement as a political document - a guide to the overall design of strategic - doctrinal framework of the country.

In the creation of the National Concept for security and defense a key role had the Cabinet of the Prime Minister. The Ohrid Framework Agreement was prepared by the domestic leaders, including the Cabinets of the President and the Prime Minister, the leaders of the political parties and their counselors, as well as the international representatives (EU, USA) and their staff for support. The strategic defense review was created by the Ministry of defense with the help of the Council Team of NATO and the team of Booz Allen Hamilton, present as the counselor's teams in the country. The process of defining and adopting the Review allowed incorporation of political and intellectual basis for the role and the goals of the armed forces. That was a mean for determining the type of the armed forces that the Republic of Macedonia can allow and at the same time it was a mean for finding resources through the taxpayers and a basis for transforming the army from 'national army' to modern, efficient, sustainable and professional army. Prior to the preparation of the review, there were two alternatives to do the same. The first was to do the same inside the Ministry of Defense, where the existing capabilities would be reviewed and assessed and the developed defense spending under accessible resources and defensive plans would be continuously upgraded. This should be done through the established working groups to implement the NATO program Partnership for Peace. This process will show that 90% of the defense budget is spent for salaries, and therefore a fresh approach to the conception of future reforms was needed. The second alternative was to start with a review to be politically driven, and it would be the foundation for the defense sector in the country, which would include elements from the first approach discussed. The second alternative was chosen, that is, the preparation of the Strategic Defense Review. This led political process and demanded government and presidential support and their commitment to implement it. The review began on the basis of relevant and updated strategic analysis given in the National Concept for Security and Defense (Лазаревски П. et al, 2002).

The Defense strategy and the White book for defense were also prepared by the Ministry of Defense with the support of Advisory Teams, and the National Security Strategy was developed by the Government. The strategy for reforms in the police and the National Strategy for Integrated Border Management were prepared by the staff of the Ministry of Interior, who used expertise through projects for reforms in the police funded by the EU and managed by the European Agency for Reconstruction.

In the development of the strategies was included a wider public debate too. The process from 2002 was the starting point. As an example, in the autumn 2003 before the adoption of the Political framework of the Strategic defense Review a debate was held to which were invited all the former ministers of defense and the former chiefs of staff of the Macedonian Army. This trend of organizing public debates with prominent experts in the field of defense and security before making key documents is still maintained. Another example is the established practice of the Ministry of Defense for organizing public debates and exchange of views on strategic documents. Some of them are the organized public debates on the White Paper of Defense 2012, the Defense Diplomacy Strategy 2012 and the Strategy for smart defense 2012.

In terms of the strategic document which defines the national security policy of the state the Law of Defense stipulates that two documents should be adopted that regulate this matter. Those are the *National Concept for security and defense* (adopted by the Parliament) and *The Strategy for defense (*adopted by the President, the Government gives an opinion about it and is prepared by the Ministry of Defense). According to the National Concept for security and defense **the Macedonian policy for national security** is a *complex and interdependent set of measures, activities, plans and programs, undertaken by the country in order to protect, sustain and improve its security and the security of its citizens, in accordance with the available resourc-*

es and with active collaboration with the international community. It includes *the political, economic, defensive, inter-defensive, social and ecological component (*National Concept for Security and Defense*,* 2003*).*

The basic and long-term goal of the national security policy is to *protect, maintain and improve the security situation of the country, by creating an environment for realization of the national interests of the Republic of Macedonia.* For achieving this goal it is necessary to be undertaken and to be maintained and improve the following **measures and activities:** *maintaining and improving the effectiveness and objectivity of the means and methods of collecting data and information of importance to safety; quality and continuous expert analysis of the security environment, for active participation in its creation and prevention of risks and dangers; maintaining and improving the security capacities and capabilities for prevention, minimization and elimination of security risks and threats, and resolution of conflict and crisis situations; maintaining and improving the level of preparedness of the state authorities and harmonization of regulations, rules and procedures for timely coordination management, as well as for efficient, timely and adequate response to the security risks and hazards; Development of the border service which is effective to control the border and the border zone outside the legal border crossings, which will prevent all types of illegal trade, which will build capacity and unique procedures for cooperation and mutual assistance with its neighbors, the region and international community. Border Service should ensure constant improvement of relations of trust and cooperation with the local population, and to take account of the representation of ethnic communities in its composition and direction of the safety system to achieve interoperability with others, similar systems in the democratic countries Europe.*

The policy of the National security of the Republic of Macedonia according to the Concept is based and it should be guided according to the following **directions:** *active and real participation in the international efforts to create and enhance peace and security, given that security is inseparable and does not depend only on one country; sovereign right to defend and guarantee their safety with the right to make its own decision to join the unions; right on rejection of certain obligations and contracts for which it is assessed that can endanger the safety of the Republic and / or adversely affect the security of other states; compatibility of a nationwide security in accordance with the constitutional and legal solutions as well as international standards and ratified international agreements; incorporation into national law and diplomatic activity to do all the neighbors - the generally accepted norms and standards in all areas of international law and their proper implementation in practice; individual institutions responsible for security, although still a key place and role in the contemporary understanding of security, is no longer solely responsible for the care, maintenance and construction of the security environment and condition. Therefore the assessment, measures and activities for protection, maintenance and improvement should be seen as a system of complex and interdependent factors, such as political, economic, defense and interior - safety, social, environmental and others; ongoing democratic and civilian control and oversight institutions and forces whose business is security and national defense; prevention, i.e. measures and activities that provide prevention of risks, dangers and crises, their timely identification and removal; coordination of measures, activities and security capabilities by applying timely and full use of skills and resources to tackle the crisis and the possibility of giving or receiving assistance and cooperation; permanent responsibility of the departments of the state government, local government, political parties and other legal and economic entities, NGOs and other associations, like all citizens, to participate in the implementation of the policy of a nationwide security* (Official Gazette of the Republic of Macedonia", No. 40/2003).

In the Concept of National security and defense the policy views are grouped in the following areas: ***foreign, economic, defense, internal security policy and the policy of environmental protection.*** Instruments are all normative-legal, organizational, procedural, human and other

resources and the other possibilities and capabilities that are available to holders and participants in achieving security policy, as well as relationships, communication and cooperation with all government and non-governmental, national and international organizations, bodies, bodies, associations and other forms of cooperation (Лазаревски П. et al, 2002).

CONCLUSION

The security policy of the Republic of Macedonia isn't a mechanic set of few mutually isolated policies, but a special quality that consists of organically unified aspects of all the policies which reflect or may reflect (directly or indirectly) on the security of the country, internal stability and its international position in the broadest sense, said Pande Lazarevski. According to him, the conduct of the security policy of the Republic of Macedonia implies a shared system of values among certain key issues of its survival and prosperity, and sufficient knowledge about the complexities of national security, the process of creating a security policy and the positioning and interdependence of the various actors the context of the creation and implementation of that policy.

The implementation of the security strategies and concepts in the Republic of Macedonia should be a system of measures and activities for applying the strategic thought, undertaking activities, the efficiency of the security operations and the general strategic access in whole is analytically followed. The way this will be implemented is determined by the security and political constellation, security and political trend - action performance of the entity in the security system of the country (Лазаревски П. et al, 2002).

Depending on the stage and the circumstances that characterize the political conflict as desirable in terms of achieving the set goals, we resort to combining different strategic approaches. The basic premise is that the choice thanks to him, the security entity will achieve the goals it has set. Similarly, it is assumed that the selected operational and functional security strategies and concepts will help in realizing segmental certain milestones as part of a global strategic target framework and in accordance with the general strategic concept.

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THE ROLE OF SOCIAL NETWORKS IN DISASTERRISK REDUCTION

Vladimir M. Cvetković, PhD
Marina Filipović
Faculty of Security Studies, University of Belgrade, Serbia

Slavoljub Dragićević, PhD
Ivan Novković, PhD
Faculty of Geography, University of Belgrade, Serbia

Abstract: As of recently, the role of social networks in the disaster risk management process has become significantly important. This is largely due to a huge number of smartphones with installed applications (Facebook, Twitter, etc.) that allow their users to share information in the form of text, images and video. By analyzing and describing the multiple possibilities and significance of social networks in various stages of disaster risk management (before, during and after), the authors conducted a research of quantitative research tradition with the aim of examining the attitudes of the students of the Academy of Criminalistic and Police Studies and the Faculty of Security Studies University of Belgrade in terms of possibilities, reliability and motivation for the use of social networks in such situations. The results obtained in the research show a high degree of motivation of respondents for the use of social networks in situations immediately before, but also during and after the manifested consequences of disasters. Emphasizing the undeniable advantages of using the social networks in disaster risk management, as well as the results of the research, decision-makers could create certain programs to improve citizen security and reduce disaster risks by using information platforms of the social networks such as Facebook, Twitter, Instagram.

Keywords: disasters, social networks, Facebook, Twitter, Instagram, attitudes.

INTRODUCTION

The significance of social networks in reducing disaster risk (Cvetković&Filipović, 2017) has grown sharply over the past decade. It can be said that the increase in the number of social network users was not the only factor that contributed to this but also the acknowledgment of different advantages of their use in such situations.For example, in disaster risk management, social networks (Facebook, Instagram, Twitter) can be used in different ways(Imran, Elbassuoni, Castillo, Diaz, & Meier, 2013a): listening to public debate, monitoring situations, extending disaster response and management, crowd-sourcing and collaborative development, creating social cohesion and furthering causes (including charitable donation) and enhancing research.

In addition, social networks can be defined as web-based services that allow their users to create public or semi-public personal profiles and exchange messages with other users in the same system (Ellison, 2007). Starting from some characteristics of disasters (unpredictability, destructive consequences, difficult functioning of critical infrastructure, etc.) (Cvetković, 2017) social networks enable emergency response services to collect a range of information directly on the territory affected by the consequences of such events. It may be information on disaster characteristics such as the intensity of danger (water level and speed, soil bursting, etc.) and its impact on people and their material assets, etc. It is certainly easier to get information about the urgent needs of people in terms of necessary water and food supplies, first medical aid, etc. through the social networks.The obtained information may vary depending on the type of the social network. Generally, there are social networking sites (Facebook, Twitter), sites for sharing multimedia content (YouTube), informational, professional, scientific sites (research.gate, academia.edu), etc. Through scientific social networks, one can obtain high quality and important information for decision-makers in the local community. These are, above all, various scientific works that provide clear recommendations for the improvement in certain areas of security.

During the catastrophe caused by floods in Serbia in 2014, the social networks were massively used for sharing all sorts of information. At first, the messages were about the news of poorly-defined shores, the location of water breakthroughs in the settlements, and damage to infrastructure. It can be said that hashtag (#) was covered with various information about the evacuation in Obrenovac, the condition of the embankments in Belgrade and other cities, as well as pictures of water levels and flooded streets. In addition to publishing various messages, within a few hours, a large number of groups and pages were created on which ordinary people organized volunteers, delivery, and assistance to help reach as many disadvantaged people as possible. Further information related to the various activities of coordinating the action of care by collective centers, distribution of food and water, organization of volunteer efforts, etc.

In order to use the social networks more effectively in reducing disaster risk, it is necessary to inform all relevant entities about the possibilities of using them before, during and after such events. Only in this way will it be possible to take advantage of all the benefits of using the social networks.

LITERATURE REVIEW

Houston et al. (2015) found that fifteen distinct disaster social media uses were identified, ranging from preparing and receiving disaster preparedness information, warnings and signaling, as well as detecting disasters prior to an event and (re)connecting community members following a disaster. Also, they said that the framework illustrated that a variety of entities may utilise and produce disaster social media content. Social media have a vital role in dissemination ofinformation during natural or man-made disasters and the volume and velocity of tweets posted during that event today tend to be extremely high, making it hard for disaster-affected communities and professional emergency responders to process the information in a timely manner(Imran et al., 2013a). Paul (2015)highlighted that during recent disasters millions of status updates appeared on various social networks and this suggests that people's reliance on the social media at times of disaster has increased tremendously in recent years. He conducted research with an aim to establish how the information relevant to emergency services could be identified from Twitter automatically during and following a natural disaster. In order to do that, an automated method of evaluating whether an individual tweet may be relevant for first responders following a natural disaster was developed and tested.The new

algorithm resulted from iterative development and testing that assigns a relevance score to each tweet(Paul, 2015).Alexander (2014) found that literature concentrated mainly on specific topics, which included the following: how social networks function and how they are used; how to build and utilise algorithms either to enhance social networking or to monitor it; the extent to which people use social networks, how they perceive them and what their communication preferences are; the penetration of devices such as 'smart' mobile telephones and the extent to which these provide people with access to social media; how social media are used in disasters; the views and opinions of emergency managers and journalists regarding social media and the extent to which the new media are integrated with more traditional means of communication; how social media interact with the traditional sources of information etc. Keim and Noji (2011) found that the role of the social networks in disaster management became galvanized during the world response to the 2010 Haiti earthquake. Also, they found that during the immediate aftermath, much of what people around the world were learning about the earthquake originated from social media sources. Because of that, they concluded that the social media became the new forum for collective intelligence, social convergence, and community activism.

The social media can positively impact disaster relief efforts (Cvetković, Milašinović, &Lazić, 2018), as they do provide an inherent coordination capability for easily coordinating and sharing information, resources, and plans among disparate relief organizations(Gao, Barbier, & Goolsby, 2011). Besides that, disaster social media users in the framework include communities, governments, individuals, organisations, and media outlets(Houston et al., 2015). Several disaster researchers and practitioners have suggested that the use of social media can help build community disaster resilience(Dufty, 2012). Imran, Elbassuoni, Castillo, Diaz, and Meier (2013b)studied the nature of the social-media content generated during two different natural disasters and trained a model based on conditional random fields to extract valuable information from such content. Also, they evaluated their techniques over two datasets through a set of carefully designed experiments. Besides, they test their methods over a non-disaster dataset to show that the extraction model is useful for extracting information from socially-generated content in general.Lindsay (2011) found that in the last five years social media have played an increasing role in emergencies and disasters. It can be said that social media sites rank as the fourth most popular source to access emergency information. The social media can be used by individuals and communities to warn others of unsafe areas or situations, inform friends and family that someone is safe, and raise funds for disaster relief.

METHODS

The subject of this quantitative research is the examination of attitudes of students at the Faculty of Security Studies of the University of Belgrade and the Academy of Criminalist and Police Studiesregarding the role of social networks in reducing the disaster risk. Starting from the fact that the students of the mentioned faculties were in already formed groups, we decided to use a cluster sample and the selection of the members of the population in the sample was carried out by selecting one whole group (third year of studies). On that occasion, 315 students were interviewed, out of which 115 were from the Academy of Criminalistic and Police Studies. One-step cluster sampling was conducted for reasons of lower costs of its realization. On the other hand, the lack of conducted research is reflected in the insufficient independence of selection of sample members, since members of the same cluster have a much greater chance of finding themselves in the sample than members of different clusters. Compared to the characteristics of the sample itself, it can be said that female respondents were slightly more included (57.2%) than men (42.8%). Starting from the structure of the

student population in relation to gender, it can be said that the sample is representative. When it comes to the age of the respondents, the sample was mostly covered by respondents aged 22 (47.6%), then 21 (31.7%), and 20 (20.6%). Regarding the ownership of the facility in which students lived, as expected, the largest number lived in rented facilities (62.8%), and then in those owned by a family member (37.1%). The largest number of students encompassed by the sample was unemployed (82.5%). When it comes to household income, the highest percentage of the respondents' income was up to 210 EUR (Table 1).

Table 1: *Socioeconomic and demographic information on the respondents (n = 315).*

Variable and number of respondents	Category	Number	%
Gender	Male	135	42.8
	Female	180	57.2
	20	65	20.6
	21	100	31.7
	22	150	47.6
Ownership of house	Rented	198	62.8
	Family member	117	37.1
Employment status	Employed	55	17.4
	Unemployed	260	82.5
Monthly family income (€)	Up to 210	130	41.2
	Up to 420	100	31.7
	Up to 630	50	15.8
	Over 750	35	11.1

In order to carry out the survey, the survey questionnaire was developed and tested by Abdullah, Nishioka, and Murayama (2016). They developed a questionnaire (using brainstorming) to investigate factors which influenced people's decision-making in forwarding disaster information. Also, they analyzed using exploratory factor analysis and as a result, five factors were derived from 3 question items which are: trustworthy information, the relevance of the information during disasters, willingness to supply the information, the importance of the information and self-interest.

RESULTS AND DISCUSION

After the survey was conducted, descriptive statistical analyses were initiated in order to determine the given responses. As for the question which social network they would use to share information about emergencies, the largest number of respondents indicated the Instagram (48.6%), Facebook (37.1%) and Twitter (14.3%). The explanation of why most respondents would use the Instagram as a social network in the sharing of information should be found in the characteristics of the networks themselves. Additional research is needed to get additional explanations about the choice of a social network (Figure 1).

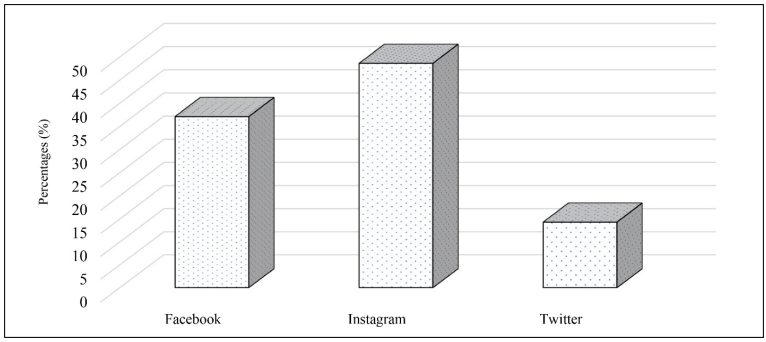


Figure 1. *Percentage distribution of answers.*

When it comes to disseminating information about disasters due to the belief that such information is predominantly accurate, the obtained research results (M = 3.93) show that 64.8% of the respondents agree with this assertion, while 35.2% of the respondents disagree (Table 2). It can be assumed that citizens want to share information that is true and that could help the competent authorities to improve the various aspects of citizens' safety. However, further research needs to be carried out to examine all the factors influencing the motivation of citizens to share information on disasters. Previous experience with disasters (Ardalan et al., 2010; Oral, Yenel, Oral, Aydin, &Tuncay, 2015; Shaw, ShiwakuHirohide Kobayashi, & Kobayashi, 2004) can have a major impact on taking preventive measures against such events, but also the awareness of the necessity to share important information through social networks. For these reasons, respondents were asked to evaluate the claim, "I am disseminating information about disasters because they have experience with common events". The obtained results (M = 3.39) show that 46.7% of the respondents agree with this statement, 29.5% neither agree nor disagree, and 17.8% disagree. Citizens who have experienced the consequences of certain disasters should be better in perceiving the needs of competent emergency and rescue services, bearing in mind that they had personally faced them.

Forwarding information on disasters via social networks could be related to knowledge (Adem, 2011; Cvetković et al., 2015; Cvetković et al., 2018; Cvetković, Lipovac, &Milojković, 2016; Pathirage, Baldry, &Seneviratne, 2010; Towers, 2015) that citizens have about specific cases of informing other citizens. The results of the survey show that 61.9% of the respondents agree, 14.3% neither agree nor disagree, and 22.9% disagree with the claim to forward information they have knowledge about (M = 3.67). In addition, 51.4% of the respondents forward the information because they are currently reading it and it has attracted their attention. On the other hand, 16.1% of the respondents neither agree nor disagree with such a claim, while 32.5% of the respondents do not agree at all (M = 3.25). A certain number of respondents (37.2%) agree with the claim that people are guided by their instincts or feelings when they forward information. In contrast, 22.9% neither agree nor disagree, while 40.1% disagree with that (M = 3.06). Thus, the majority of respondents disagree with the assertion that instinct or feeling may be the main motivational factor.

When it comes to the transmission of information over social networks, a number of people are forwarding information to draw attention to themselves or to achieve specific interests (Ellison, Steinfield, & Lampe, 2007; Kwon & Wen, 2010; Lin & Lu, 2011). Of the total number of respondents, 21.9% agree with the claim, 14.3% neither agree nor disagree, and 63.8% disagrees with the claim that disaster information is being disseminated to mislead other people's attention (M = 2.19). Since the majority of respondents disagree with this assertion, it can be assumed that respondents are experiencing such events emotionally and, according

to their personal empathy, assume that the majority of citizens forward information to help other people, not for the purpose of realizing some personal interests. On the other hand, the results of the survey show that 21% of respondents agree, 33.3% neither agree nor disagree, while 45.7% of respondents disagree with the claim that relevant information is being transmitted because citizens are excited to share significant information (M = 2.53). In addition, sharing information to protect people is one of the most important factors for motivating citizens (Phillips Jr, Ting, &Demurjian, 2002). The results of the survey show that 50.5% of the respondents agree, 26.7% neither agree nor disagree, and 22.8% disagree with the claim that information is being forwarded with the desire to spread the warning information (M = 3.50). The results obtained are expected to be taken into account in previous research (Sutton et al., 2014). In addition to the warning feature, a number of people can also forward information to remind other people what they need to do to protect themselves in a given situation (Chatfield, 2013). According to the obtained results, 60% of the respondents agree, 21% neither agree nor disagree, while 19.1% of respondents disagree with the claim that forwarded information can remind other people of certain activities (M = 3.65). Then, it was found that 61% of respondents agree, 19% neither agree nor disagree, while 20% of respondents disagree with the claim that information transfer can improve the safety of other people (M = 3.66). It is interesting to note that a greater number of respondents agree 50%, 31.4% neither agree nor disagree, and 29.5% disagree with the claim that information with negative content is forwarded because other people may be introduced to a bad example (M = 3.09). There are also people who use social networks to share opinions and experiences (Meissner, 2002). Of the total number of respondents, 29.5% agreed, 30.5% neither agreed nor disagreed, and 49.1% disagreed with the claim that information is exchanged for the purpose of exchange of opinions and experience (M = 3.09) (Table 1).

Table 1.*Descriptive statistic regarding questions.*

Questions	Mean	St. deviation	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I forward because I believe true information is more important than false information, so we should spread it.	3.93	1.24	5.7	8.6	21	16.2	48.6
I forward because I have experienced disasters before.	.3.39	1.20	6.7	17.1	29.5	23.8	22.9
I forward information that I know and have some knowledge regarding that.	3.67	1.37	10.5	12.4	14.3	23.8	38.1
When I read the information and it captures my interest, I forwardit.	3.25	1.38	16.2	16.3	16.1	29.5	21.9
I follow my instinct (or feeling) to spread the information	3.06	1.41	16.2	23.8	22.9	12.4	24.8
I forward the information to attract other people attention to get famous	2.19	1.33	45.7	18.1	14.3	15.2	6.7
I forward because I feel excited to share information about the unusual situation topic disaster.	2.53	1.27	30.5	15.2	33.3	12.4	8.6
I forward because I want to spread the warning information to other people.	3.50	1.23	5.7	17.1	26.7	21.9	28.6

I forward because I want to remind other people so that they are alert about it.	3.65	1.17	4.8	14.3	21	31.4	28.6
I forward because I believe my action could save other peoples life.	3.66	1.27	7.6	12.4	19	26.7	33.3
I'm forwarding the negative content because I can learn and alert other people of bad example.	3.09	1.27	16.2	13.3	31.4	23.8	15.2
I forward information because I want to allow exchange of opinion and discussion on the specific disaster topic in timeline.	3.09	1.27	12.4	26.7	30.5	14.3	15.2
When forwarding, I can check whether the information is true or false.	2.93	1.23	15.2	22.9	18.1	25.7	18.1
I check the information in the disaster area, so I decide to forward it.	3.09	1.34	10.5	20	21	28.6	20
I forward because I think it is important to share the information I read.	3.28	1.27	10.5	14.3	28.6	30.5	16.2
I forward because I want to inform the public who may not follow the specific Facebook, Instagram or Twitter account.	3.27	1.26	5.7	18.1	24.8	30.5	20
I forward so that people can make summary of it, for example,on their website.	3.44	1.18	11.4	20	25.7	30.5	12.4
Although I do not know about it, I forward the information so that my followers and other people can give feedback ant tell about it.	3.12	1.20	13.3	16.2	31.4	18.1	21
I do not know the forwarded content in details. But if I think the information is important, I will forward it.	3.17	1.30	15.2	14.3	29.5	26.7	14.3
I forward because I want to allow my followers to add their opinion on this information.	3.10	1.25	28.6	17.1	21.9	24.8	6.7
I forward because I want to get response from disaster management professionals who may read the information.	2.63	1.31	26.7	26.7	18.1	21	6.7
I forward because I think it is good for every people to have the information about a disaster.	2.54	1.27	14.3	26.7	27.6	22.9	8.6
I forward because I feel awkward after I saw the high number of forwarding information.	2.85	1.17	21.9	24.8	22.9	23.8	5.7
I will forward if the one who forwarded the message has a good 'follower' relation.	2.96	3.28	15.2	15.2	29.5	29.5	10.5
I forward because I trust the informer.	3.05	1.21	18.1	17.1	28.6	24.8	10.5
I forward because the information may relate to my followers' situation.	2.91	1.25	15.2	29.5	26.7	22.9	5.7
I forward because by forwarding, I can collect disaster information for other peoples' use and need.	2.74	1.14	12.4	18.1	31.4	24.8	13.3
I forward because the information from social networks are faster updated than the information from TV.	2.74	1.14	11.4	16.2	26.7	22.9	22.9
I forward because the information come from trusted source and highly believable site.	2.70	1.19	8.6	21.9	27.6	19	22.9
I forward because I can get detailed disaster information from local people rather than from news and TV.	3.09	1.20	14.3	18.1	29.5	21	17.1
I forward because there is a proof from disaster locations together with the information.	3.30	1.29	18.1	15.2	28.6	22.9	15.2
I forward the information which contains facts in it.	3.26	1.26	8.6	15.2	35.2	27.6	13.3

I forward disaster information because I want to get advice on disaster preparation.	3.09	1.28	10.5	18.1	28.6	26.7	16.2
I forward because I can get early information from social networks before I proceed to check on the safety status of my friends and family by telephone.	3.01	1.31	10.5	16.2	24.8	32.4	16.2
I forward because hashtag function helps and allows me to easilygather a lot of information about the disaster.	3.22	1.12	13.3	12.4	59.5	32.4	12.4
I will forward the information because I feel pressured and desperate in tense situations.	3.20	1.21	16.2	18.1	28.6	25.7	11.4
I will forward if the information is for fun or joke.	3.28	1.21	14.3	22.9	27.6	18.1	17.1
I will forward if the information is a positive thing.	3.18	1.20	9.5	17.1	28.6	24.8	20

When forwarding information via social networks, the question arises as to whether those who forward such information examine the accuracy of its content. The analysis of the obtained results shows that 43.8% of the respondents agree, 18.1% neither agree nor disagree, while 38.1% of the respondents disagree with the claim that forwarded information is accurate (M = 2.93). As one of the reasons for information forwarding, we have examined the agreement with the statement, "I check the information in the disaster area, and therefore I decide to forward it". Of the total number of respondents, 48.6% agree with the claim, 21% neither agree nor disagree, and 30.5% disagree with the claim (M = 3.09). On the other hand, 46.7% of respondents agree, 28.6% neither agree nor disagree, while 24.8% of respondents disagree with the claim that information is forwarded because it is important to share information that are readable (M = 3.28). In addition, 40.5% of the respondents agree with the opinion on forwarding information for the purpose of informing the public, 24.8% neither agree nor disagree, and 23.8% disagrees with the claim (M = 3.27). 42.5% of respondents agree with the claim that information is forwarded so they can be found on some websites, 25.7% neither agree nor disagree, and 29.5% disagree with that (M = 3.44). The disclosure of information because of the followers is also a very important factor with which 38.1% respondents agree, 31.4% neither agree nor disagree, and 29.5% of respondents disagree with the mentioned factor (M = 3.12).

The respondents were asked to evaluate the agreement with the claim that they are familiar with the content of the message they are sending. According to the obtained results, 41% of respondents agree with the above statement, 29.5% neither agree nor disagree, and 29.5% of respondents disagree (M = 3.17). Observed from another angle, 31.5% of respondents agree, 21.95 neither agree nor disagree, while 45.7% of respondents agree with the statement that they forward information so that his or her followers can write their opinion about it (M = 3.10). 27.7% of respondents agree with the assertion that the information is forwarded so that feedback can be obtained from the protection and rescue forces managers, while 18.1% of respondents neither agree nor disagree and 53.4% of respondents disagree (M = 2.63). The majority of respondents disagree with the aforementioned claim and accordingly, reasons for the forwarding of information should be sought in other motivational factors. Further analyses found that 29.5% of respondents agree, 27.6% neither agree nor disagree, and 41% disagree with the claim that information is forwarded because it is good for everyone to be familiar with the disaster information (M = 2.54).On the other hand, 40% of respondents agree, 29.5% neither agree nor disagree, and 30.4% disagree with the claim that they would forward the information if there is a good connection with followers (M = 2.96). Then, it was found that 35.3% of respondents agreed, 28.6% neither agreed nor disagreed, and 35.2% disagreed with the claim that information is forwarded because a source is reliable (M = 3.05). It was found that 28.6% of respondents agree, 26.7% neither agree nor disagree, and 44.7% disagree with the forwarding of information that may be related to followers (M = 2.91). Regarding the disposition to disseminate information about disasters because such forwarding

is much faster than on television and radio, 45.8% of respondents agree, 26.7% neither agree nor disagree, and 27.6% disagree (M = 2.74). Of the total number of respondents, 41.9% agreed, 27.6% neither agreed nor disagreed, and 30.5% disagreed with the claim that information coming from areliable source is forwarded (M = 2.70). 38.1% of respondents agreed that disaster information should be sent directly through people affected by the consequences of disasters, 29.5% neither agree nor disagree, while 32.3% of respondents agree (M = 3.09). A large number of respondents agree that forwarding of such information is very important and necessary. In relation to the forwarding of information for which there is evidence, 38.1% of respondents agree, 28.6% neither agree nor disagree, and 33.3% disagree (M = 3.30). Of the total number of respondents, 40.9% of respondents agreed, 24.8% neither agreed nor disagreed, while 26.7% of respondents agreed that forwarding of information was conditioned by the speed of disaster information (M = 3.09). The dissemination of disaster information is also due to high pressure. 37.1% of respondents agree with this view, 28.6% neither agree nor disagree, and 34.3% disagree (M = 3.28). Also, 44.8% agree, 28.6% neither agree nor disagree, and 26.6% of respondents disagree with the claim that information are being forwarded if they are positive (M = 3.18).

CONSLUSION

Based on the fact that a large number of people use some of the existing social networks, decision-makers, as well as emergency response officers, should pay much more attention to their use in reducing disaster risk. They can be ideal for raising awareness of citizens about the existing dangers which surround them, as well as for educating them on preventive measures in order to mitigate or eliminate the consequences of such events. Social networks can play a key role in informing citizens, gathering help for affected people, gathering people to help vulnerable ones. Certainly, the use of social networks can have serious negative consequences, such as spreading misinformation, raising an unnecessary level of fear, etc.

In relation to preventive activities, social networks can be used to disseminate all information on disaster hazard characteristics at the local level. It is possible to introduce citizens with risk maps in the areas they live in. In addition, it is possible to develop interactive online campaigns to improve the readiness of citizens to respond in such situations. On that occasion, it is possible to use educational videos, photos, and text in the context of the hazards characteristic of the area in which people live. In addition to preventive activities, social networks can be very helpful in responding to and eliminating the consequences of the events that have occurred. Endangered people can photograph and record a large number of details important for making final decisions about the actions of members of the emergency rescue services. The obtained results of the research showed a great interest among the respondents in the use of the social networks in order to share information about disasters. Numerous factors influence the motivation of people to share information during disasters, and one of them is certainly concern for the safety of other people.

After disasters, social networks can greatly facilitate the setting of priorities for the distribution of food and water. Surely, in order to exploit the full potential of the social networks, it is also necessary to educate citizens how they can help emergency rescue services in the implementation of activities aimed at reducing the disaster risk. Relevant strategies, both national and local, should take into consideration the potentials of the social networks for reducing the risk of disasters. It is necessary to continue with the implementation of the research in order to as much as possible clarify doubts about the importance of the social networks in the process of disaster management.

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FIRE INVESTIGATION: LEGAL REGULATIONS AND PERFORMANCE OF FIRE INVESTIGATOR IN THE SLOVAK REPUBLIC

Milan Marcinek, PhD
Police Academy, Bratislava, Slovak Republic

Abstract: If there are suitable conditions for the spread of fire, then it can reach very large dimensions. It causes significant damages to property, can seriously endanger health and people´s lives or even be the cause of death. Lack of information on the flammability and explosive materials, conditions of storage and handling are a widespread cause of fires and explosions not only in the industry but also in the other sectors in present society. Moreover, it is essential to pay attention to the different causes of fire. We should create effective and efficient preventive measures to eliminate shortcomings in the project documentations and technological operations respecting the general safety regulations.

The contribution describes the current situation in the field of fire investigation in the area of the Slovak Republic. The author provides direct information on legal regulations and operating conditions of the fire investigator. Upon this information he analyzes status quo and formulates possible recommendations in the field of fire investigation.

Keywords: fire, fire investigation, legislation, expert opinion, fire-fighters

INTRODUCTION

The increasing number of fires and their consequent increase in damage increase the need for skilled workers who are focused on detecting the causes of fires. The result of their work is fire prevention and reduction of damage. The real increase in fire hazard is caused by a number of new substances. Wood in construction has been replaced by concrete, plastic, glass, and they created a deceptive idea of fire protection, which affects the qualitative side of fire. The increasing density of settlements, heights and areas of construction, along with other factors, will influence the eventual occurrence of a fire.

There are several tools and legal options for action on people to eliminate the occurrence of fires. At present, there is still sufficiently tight legal framework covering violations of fire safety rules. And yet, according to studies, about 98% of fires arise directly or indirectly from human inattention and activity.

Nowadays, there is an intense need to develop and use new methods that would provide information not only for the surveyors but also for further research and development for new fire protection technology. Fire detection is a highly specialized activity aimed at identifying causes and ways of creating and spreading fire and the damage caused by it. It also includes statistics management, which is linked to the findings of specific causes used for the creation

of standards in the field of fire protection. Based on the determination of the cause of the fire, the legal responsibility of the particular persons for the occurrence of the fire and the application of the criminal methods and procedures in the investigation process can be derived.

LEGISLATION AND STANDARDS ON THE DETECTION OF CAUSES OF FIRES

- Act of the National Council of the Slovak Republic No. 314/2001 Coll. on protection against fire as amended

This Act deals with the issue of the fire detection in the fourth part - state fire surveillance, namely in paragraph 25 the execution of state fire surveillance and in paragraph 26, 27, 28 the authorities performing state fire surveillance. State fire surveillance means the activity of the state administration, aimed at checking compliance with the obligations of defined legal entities and natural persons engaged in business, in which the actual situation in the controlled entities is compared with that required by the legislation. A new element in the execution of state fire surveillance is the detection of the causes of fires.

- Decree of the Ministry of the Interior No. 121 of 9 December 2005 amending Decree of the Ministry of the Interior No. 121/2002 Coll. on fire prevention

This Decree implements certain provisions of the Act of the National Council of the Slovak Republic no. 314/2001 Coll. It deals with the issue of the detection of the causes of fires in Section 41 for the detection of causes of fires. At each fire, the cause of its occurrence is determined. It is a specific professional activity aimed at detecting the circumstances related to the occurrence of a fire. Lessons learned from this activity are applied in the field of fire prevention. In determining the causes of the fires, the Presidium, the Regional Directorate and the District Directorate of the Fire and Rescue Corps cooperate with other bodies, in particular the Police Force of the Slovak Republic, courts and the Prosecutor's Office.

- Instruction of the President of the Fire and Rescue Corps No. 32/2016 of 30 November 2016 on the detection of causes of fires, the processing of fire documentation and statistical monitoring and analysis of fires

This guideline addresses directly the issue of the fire detection and the statistical monitoring and fire analysis. It issues the tasks at the individual stage of the Fire and Rescue Corps and directs the work of the investigators to the causes of the fires.

It also regulates this instruction:

a) organizational arrangements for fire detection,
b) material and technical equipment of the fire investigator,
c) details of sampling from fire area,
d) details of the documentation,
e) statistical fire monitoring,
f) fire analysis.

In the field of fire detection, fire is divided whether the fire-fighting unit intervened and according to the damage to the property, health or other damage.

To designate State Fire Inspectorate responsible for fire detection, we distinguish the following types of fires:

a) fire with a direct damage of up to € 200,000 and no more than one person killed;

b) serious fire;

c) particularly serious fire.[1]

METHODOLOGY FOR DETECTING THE CAUSESOF FIRES

On the basis of the data and knowledge gained in determining the cause of the fire, the following shall be prepared:

a) fire-fighting expertise,

b) expert opinion of the fire cause (hereinafter referred to as "expert opinion"),

c) intervention report.

The Presidium of the Fire and Rescue Corps (hereinafter "the Presidium") provides per the Institute fire investigation of the particularly serious fire by the form of fire expertise. The County Directorate ensures the detection of the causes of the occurrence of serious cases of fires through at least two surveyors from the district directorates in the territorial jurisdiction of the relevant regional directorate processed in the form of expert opinion; one of the surveyors is always the surveyor of the district office.

The District Directorate provides for the detection of causes of fires

a) the commander of the fire action pursuant to Art. 3 Article 2 a) that were created in the premises listed in Annex no. 1, with a maximum damage of 3,000 EUR processed in the form of an intervention report and the "Fire Inspection" form, a specimen of which is given in the instructions,

b) the investigator in other cases, concluded in the form of an expert opinion; in the case of a light car fire, the light vehicle form, which is part of the software application, is also processed.

Investigation of the cause of the fire in the form of fire - fighting expertise in case of a fire that does not meet the criteria of a particularly serious fire case is decided by the President Fire and Rescue Corps or Director of the Institute.

The commander provides information of the killed and injured persons, preliminary cause of fire, amount of direct damage, object characteristics, owner and user for the purpose of report processing to the Operations Centre without any undue delay. The Operations Centre shall then inform the relevant investigator without undue delay.

The Presidium's Operations Centre shall provide the Institute without undue delay with information on the occurrence of particularly serious fire; this information is provided by telephone or by fax, SMS or e-mail.

When determining the causes of fires, according to the commander of the incident, who has ascertained the cause of the fire, the data necessary for the statistical record of the fire, the detector in writing at the end of the service hours in the form of an intervention report.[2]

1 Serious fire case is fire when
a) at least two persons have been killed;
b) at least three persons have been injured, at least one of which has suffered serious injuries or injuries.
Particularly serious fire case is fire when
a) at least three persons have been killed;
b) at least seven persons have been injured, at least one of which has suffered serious harm or has been injured;
c) direct damage amounting to more than 200,000 EUR has been incurred.

2 Art. 5 Article 3 a) Instruction.

The inspector intervenes the fire area according to the conditions set out in the instructions. He also notifies the competent Operational Centre, intervention time to the fire area, basic fire data and the time of return from the intervention. In case of the absence of a surveyor at the District Authority, the primary investigation of the cause of the fire is provided by the detector determined according to the order. If the fire detection does not meet the above mentioned, the Regional Directorate shall determine the fire investigator.

If necessary, the investigator cooperates to identify the cause of the fire and carrying out other tasks with the state administration bodies, the competent law enforcement authorities, self-government bodies, legal and natural persons, and with the selected professional workplaces.

Fire, which has been reported to the relevant District Directorate later, is recorded but the cause of its occurrence is detected only if the objective assessment is possible to assess and assess the circumstances of the fire objectively. If there is any doubt about the possibility to objectively identify fire cause, the Director of the Institute or the director of the relevant District Directorate decides on the next action.[3]

TECHNICAL ASSISTANCE

The subject of technical assistance is the cooperation of the Institute in the fire detection requiring the use of technical equipment and professional staff of the Institute, which the District Directorate does not have. A request for technical assistance for fire detection shall be made by the Director of the District Directorate in the Regional Directorate's information on the occurrence of fire, the extent and foreseeable complexity of the cause and the circumstances of fire. There is specified the intended focus of technical assistance.

The Director of the Regional Directorate decides on the request for the intervention of the Institute´s members' technical assistance, based on information about the extent of the assumed complexity of the investigation of the cause of the fire and the envisaged focus of the technical assistance. The request for technical assistance is applied by the Regional Directorate at the Presidium Operations Centre.

The technical intervention is ordered by the President or Director of the Institute. The templates for the technical assistance are given in Annexes No. 6 and No. 7. The documentation for which the technical assistance has been provided is processed by the local District Director. Fire documentation shall incorporate the results of the technical assistance provided, which shall be processed by the Institute in the form of expert opinion. The detection of fire cause which the technical assistance has been carried out is carried out and the documentation is processed by the relevant investigator. Fire sampling is not a reason for a request to technical assistance.

3 The material and technical equipment of the Institute for the purposes of fire detection is listed in Annex No. 4 and material equipment of the District Directorate for the purposes of fire detection are listed in Annex No. 5.

FIRE-FIGHTING EXPERTISE

Fire-fighting expertise is the result of a multiprofessional, comprehensive survey and analyzes of facts and evidence relating to the circumstances of the occurrence, spread and destruction of the fire. Fire-fighting expertise is carried out by an expert group. The purpose of the fire-fighting expertise is to objectively detect the circumstances surrounding the occurrence of a fire, in particular the location of the fire, the causes of its occurrence, its extension and possible breaches of the fire protection regulations. The Director of the Regional Directorate shall decide on the request for fire-technical expertise on the basis of information on the extent and assumed complexity of the investigation of the cause and circumstances of the fire; an application for the exit of an expert group applies to the Presidium.

The Board of Directors and other members of the Expert Group are appointed in the Fire Extinguishing Expertise Order. The issuing of an order for the implementation of the fire-technical expertise carried out by the Institute shall be notified by the Head of the Expert Group to the relevant Regional Directorate in cases where the Exit of an Expert Group is not requested by the relevant Regional Directorate.

The appointment of the Lead and other members of the Expert Group shall take into account, in particular, their professional qualifications and practical experience. The lead or other member of the expert group cannot be the one with whom he or she may be concerned about the relationship with the cause of the fire or its detection or with the persons who are exposed to the cause of the fire.

Group is a surveyor from the District Authority concerned. All members who are appointed to the Expert Group shall be involved in the development of fire-fighting expertise to the extent appointed by the Head of the Expert Group.

The President or the Director of the Institute shall decide on the measures that go beyond the management competency of the Leading Expert Group in the implementation of the Fire Safety Expertise. The Head of the Expert Group shall, within three working days of the return from the fire, process and forward the information from the President to the preliminary conclusion of the circumstances and the cause of the fire.

Fire-fighting expertise, where it is indicated that the relevant parts of the report were processed by members of the Expert Group, is signed by its Lead. Approval of the results and conclusions of the expertise stated in the expert report, the Director of the Institute confirms with his signature, and the Director of the Institute submits it to the President within 30 days from the date of issue of the order for its execution.

SAMPLE HANDLING

The fire sample is a subject, its part, a chemical, or a material that is based on the results of fire survey, either it is related or may be related to the fire area and its cause.

Sampling is an activity aimed at obtaining material in a different form and form, or objects or their parts, which have, respectively there is a premise that they may have causative relation to fire, and their examination provides confirmation or exclusion specified versions of the fire.

To document a fire sample means to record its status after fire and its sample location by the form of photographic documentation, video, outline sketches and explanatory notes.

Sample handling is a set of activities designed to secure a retrieved sample using special security packages or boxes, the method of storage and transport to the location of examinations.

The sampling protocol is part of the fire documentation; a separate report shall be drawn for each sample.[4]

Sample analysis is an act to be carried out at the place of collection at the place of execution the public service of the investigator or at the premises of the laboratory to confirm or exclude a direct link to the cause of the fire.

Sampling or sampling at the site of the fire or from the fire shall be carried out by the investigator in the case of an objective reason; consists of documenting the place of collection, sampling, its on-site examination or packaging and transport to the place of examination. If necessary, a sample is examined at a specialist workplace, the packaged sample with the specified application is transported to the place of examination.

The results of the analysis and examination of the samples by the investigator are incorporated into the expert appraisal. In case of sampling within the framework of the Exit of the Expertise Group, the results are presented laboratory examinations are incorporated into the fire-safety expertise. In the case of sending a sample report to the institute, the results of the laboratory examination of the sample shall be processed by the Institute in the form of expert advice and sent to the sender who incorporates it or to the expert opinion. Transport of samples to a specialized workplace will be ensured by the District Directorate within three days from the day of collection.

CONCLUSIONS ON FIRE INVESTIGATION

Expert opinion and fire-fighting expertise includes:[5]

a) basic fire data,

b) a description of the situation prior to and at the time of fire observation,

c) the area (focal point) of fire,

d) results of sample tests,

e) the cause of fire,

f) factors affecting the spread of fire,

g) factors affecting the evacuation of people,

h) organizational security assessment of fire protection and infringement of general binding provisions,

i) other knowledge or draft measures,

j) rank, name, surname of processors.

The correctness of the assessment of the cause of the fire corresponds to the person assigned to the institute or to the District Directorate who carried out the investigation of the cause of its occurrence. The Institute and the District Directorate provide, upon written request, expert opinion, fire-technical expertise or conclusions from the detection of the cause

4 In sampling, the surveyor or member of the Expert Group shall draw up a sampling protocol, a specimen of which is set out in the Guideline to Annex No. 10.

5 Paragraph 41 (3) Decree of the Ministry of the Interior of the Slovak Republic no. 121/2002 Coll. on fire prevention.

of the fire to the authorities in criminal proceedings and natural persons or legal entities under a special regulation.[6]

ORGANIZATION SECURITY

The Director of the Institute, the Director of the Regional Directorate and the Director of the District Directorate are responsible for fulfilling the tasks arising from this Guideline, within the scope of their competence, who establish the organizational, personnel, material, technical and other related conditions in the Institute, Regional Directorate and District Directorate and they shall take measures to ensure that them in the working time and at the time of the alert of the investigator.

In order to ensure the fulfilment of tasks in the field of fire detection, the investigators determine the service availability within the possibility of mobile means.

The timetable for staff readiness is processed by the 25th day of the month for the coming month. The inspectors are familiar with the on-call timetable at least 3 days before the start of the month.

The investigator, who has been ordered to be on duty outside the place of his performance, stays within the reach of the mobile means of communication and maintains connection with the operation centre and does not use alcoholic beverages at the time of on-call time or narcotics and psychotropic substances and is ready for the civil service intervention.

In order to ensure the tasks fulfilment which result from this instruction, the director of the Regional Directorate shall issue an internal regulation which will include:

a) rank, name and surname, telephone number and residence of District Directorates investigators,

b) details of informing the investigator of the occurrence and nature of fire,

c) details on security of fire cause according to Article 5(2),

d) the procedure for processing the alert timetable and the reporting of the service,

e) alert to the appropriate operational centre,

f) the procedure for requesting technical assistance.

FIRE INVESTIGATION DOCUMENTATION

Fire investigation documentation is a material whose purpose is to document the place of origin, causes and fire initiator, impacts on the occurrence and spread of fire, and general binding provisions in the field of fire protection.

If the primary acts of fire detection are provided by investigator other than the District Authority concerned, this fact shall be documented in fire documentation.

The investigator is responsible for the fire processing of the fire documentation and for the processing documentation of a particularly serious case of fire is the responsibility of the Head of the Expert Group. The district detector is responsible for incorporating the documentation into the software application Directorate.

The following list of fireworks documentation is included in the title list:

6 Act No. 211/2000 Coll. on Free Access to Information and on Amendments to Certain Laws (Freedom of Information Act), as amended.

a) the identification of the relevant District Directorate,

b) the registration number,

c) the fire reference number,

d) information on the location and time of fire,

e) the date of processing the documentation,

f) the rank, title, name and surname of the investigator,

g) the signature of the investigator,

h) the signature of the Director of the relevant District Directorate.

Fire investigation documentation must be stored in the pack labelled "Fire documentation". The document may include expert opinion or fire-fighting expertise, expert testimony, professional provisions, graphical documentation, evidence materials, intervention report and form „Fire area survey", photographic documentation and video in electronic form. Particularly, the expert opinions and judgement from other departments, the results of laboratory examinations of samples taken from the fire area, further reports, statements, state bodies confirmations and organizations confirmations, and testimonies or explanations provided to persons, including parties, are evidence of this.

Fire investigation documentation may also contain other attachments that contain a fire notification from the organization and a statement of the amount of damage.

The graphic documentation on fire area includes:

a) fire design documentation,

b) photo documentation of fire.

Fire design drawings are sketches and fire scenarios and technical drawings of buildings, technologies and fire equipment.

Photo documentation and video are produced. Video does not replace a photo documentation.

Photo documentation is prepared in:

a) the form of photographs from a fire area in the pack labelled "Photo documentation" in the case of fire when an expert opinion or a fire-fighting expertise is processed;

b) the electronic form in other cases of fire when fire documentation is processed.

Photographs in electronic form must be kept for at least 10 years and recorded in order to ensure the possibility of their later use for photographic purposes or for use in legal proceedings.

The documentation is processed within 30 days of the day of fire or a request to investigate the cause of fire if the cause of fire is carried out additionally. If the complexity of the case requires a longer period for the fire documentation to be processed, or if the completeness of the fire documentation cannot be ensured within the given deadline, the investigator will ask the supervisor to extend the processing date with justification. When processing fire-technical expertise, the processor shall request the extension of the term of the director of the Institute. The documentation is always based on the regional district office.

Documentation on a particularly serious case of fire is also based on the Constitution. The Institute, in cooperation with the District Directorate, carries out case studies on selected cases of fire for the needs of further training of surveyors.

STATISTICAL MONITORING OF FIRE

The district directorate shall for the purposes of statistical fire monitoring, process the data on fire that has arisen under its responsibility, using software application. Fire data is stored and processed separately for each district in which the district directorate has authority.

Data on fire in the buildings and buildings for state security,[7] in the Prison and Corp guards building, financial administration objects, and data on fire in mining facilities, and underground workplaces are not recorded.

Statistical data on fire is stored continuously; correctness and completeness of the statistical data in the program is the responsibility of the investigator.

Statistical data and expert opinions from the program databases for the relevant month of the year together with the corrected data from the beginning of the year shall be sent by the District Directorate of the Institute on the first working day of the following month.

Complete and corrected statistics, expert opinions and fire-fighting expertise from the program databases over the past year are sent by the district directorate of the Institute by 10 January of the following year. Date of submission of statistics, expert reports and fire-fighting expertise from the program databases is also observed in cases where part of the data is not known at the time of their transmission. Missing statistics, expertise and the technical expertise after the amendment shall be sent in the following month or under this paragraph. The investigator is responsible for sending the data.

FIRE-FIGHTING ANALYSIS

The purpose of fire analysis processing is to concentrate and analyze data and knowledge about fire and their use in management, preventive, educational, control and operational-technical activities.

The Institute, Regional Directorate and District Directorate are involved in the processing of analyzes especially knowledge gained from the detection of the causes of fire, the execution of the state fire surveillance and the activities during intervention.

The fire department is processed by the district directorate for half a year and for the entire calendar year; this analysis is submitted to the Regional Directorate in electronic form. Half-yearly analysis the fires shall be submitted by 10 July, the annual fire analysis shall be submitted by 10 January the following year.

The Regional Directorate summarizes the fire-fighting analyzes sent by District Directorates for the relevant periods, and processes the fire-fighting analyzes for the territory of the region for half a year and for the whole calendar year; processed analysis is submitted to the Institute in electronic form. Half-yearly analysis the fire condition shall be submitted by 15 July, the annual fire analysis shall be submitted by 15 January the following year. The Department conducts the analysis of fire and related surveys for the needs of the Presidium.

7 Paragraph 3 to 10 Decree of the Ministry of the Interior of the Slovak Republic No. 55/2002 Coll., Determining the headquarters and territorial districts of the regional directorates of the Fire and Rescue Corps, the district directorates of the Fire and Rescue Corps and the headquarters of the fire stations. § 139b ods. 10 of Act no. 50/1976 Coll. on the Territorial Planning and the Building Code (Building Act), as amended.

CONCLUSION

Fire detection is an activity that helps to explain the fire cause and it is a necessary basis for new legal processing of new legal and technical standards.

The next step is the assessment of the fire cause and its conclusions to further investigation. If the property, that was damaged by fire was insured, the insurance company may ask for an expert advice on Fire and Rescue Corps. At winding up the damage event and paying damages often relies on the insurance company just about the findings in the survey processed by the surveyor. If it is shown that damage to the property resulting from a fire was caused by negligence on the part of the owner, the insurance company may reduce the premium paid. Similarly, the insurer shall withdraw from the performance of the claim if the expert opinion proves that fire was based by the owner of the building for the purpose of enrichment. In such case, it is understood as an attempt for insurance fraud and the case is handled by law enforcement agency.

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WORLD ORDER TRANSFORMATION AND SECURITY POLICY CHALLENGES

Gyöngyi Major, PhD[1]
Institute for Strategic Research, Budapest, Hungary

Aleksandar Čudan, PhD
University of Criminal Investigation and Police Studies, Belgrade
aleksandar.cudan@kpa.edu.rs

Abstract: This study has a twofold aim. It focuses on the complex challenges that emerge as a result of the redistribution and coordination of economic power, adding the aspects related to the functional transformation of human society – the so-called connectography – to the horizon of interpretation.

Taking into account the possible scenarios of power shifts, it examines the new security aspects which arise primarily as a result of players' inability to adapt to the complexity of the political challenge. The authors pay special attention to the global and regional contexts of the possibilities for the creation of the strategic security environment. They discuss the potential consequences of the simultaneous application of hard and soft power, i.e. "flexible geometry".

The authors also analyse the changes envisaged for the period until 2050, which tie the importance of the shift in the geopolitical competition to the appreciation of water resources, which will render the efforts made to acquire energy carriers less fierce.

Keywords: Security Policy, flexible geometry, connectography, water resources, adaptable

INTRODUCTION: PAX SINICA – A MYTH OR THE TRUTH?

Nothing in the world is more weak and soft than water, yet nothing surpasses it in conquering the hard and strong – there is nothing that can compare. All know that the weak conquers the strong and the soft conquers the hard. But none are able to act on this. (Laozi: The Dao De Jing)

One of the most exciting areas of the theory of international relations is the international transfer of power. There is rich literature on the examination of hegemony cycles: it is a real intellectual challenge to follow the process of a state rising and becoming the key player of the international stage, then weakening and, finally displaced from its dominant position by another rising player. The system of the causes and effects in the shift of power always contains exciting details, whose understanding often requires "innovation in interpretation" as the core question is

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always why all the factors that used to ensure dominance all of a sudden become insufficient to retain it and what new factors become dominance creators.

An increasing number of studies are published nowadays, repeating that we are witnessing a cycle shift, in which Pax Americana is gradually replaced by Pax Sinica, i.e. the international dominance of China.

The new financial institutions created by China, like the AIIB and the Silk Road Fund, operate within the framework of the current global economic and financial order. The OBOR is one of the most significant initiatives of the past three decades; if properly implemented, it will reshape the global economic order. Although the OBOR is a loose and flexible scheme, it is entirely different from other, usually contract- or rule-based, integration models. The AIIB and the Silk Road Fund complement, rather than replace, the activities of global and regional multilateral development banks. The OBOR can be construed as a geo-economic concept rather than as a geopolitical strategy. It is based not on geopolitical rivalry but on economic cooperation, mutual trust and mutual benefits. (**Tianping, 2018)** According to **Tianping** if one examines the official communication and narrative, one can see that they go far beyond geopolitical considerations. The OBOR initiative serves open cooperation and is centred around economic and cultural cooperation. Its aim is not to create exclusive and elite groups or to undermine existing multilateral mechanisms. (Yang, 2014)

Naturally, there is a lot of debate around this issue, mostly because China and the processes currently taking place there are difficult to understand based on the ideas and ideologies of the developed world. China's history and culture are very different from those of Europe or, in a broader sense, of the West (Szunomár, 2012); China is a "multi-faceted rising power" (Sun, 2012 p. 1), meaning that it is very complex as regards its position, its development as a world power and its aims and ambitions. China is not a nation state but a civilisation state, and is shaped by its civilisation consciousness (Jacques, 2009, pp. 414, 435).

Though China's growth and rise as a world power poses a challenge on the entire world yet analyses focus only on current processes and problems, while there is no literature presenting relations in a comprehensive and complex manner or highlighting China's own way. However, one thing is beyond doubt: the fact that China, one of the key international players, has features different from those of the other ones will inevitably impact the entire international system itself.

In the complex system of the relations of globalisation, China's world power position is unquestionable – but the Chinese way is in many aspects different from the conventional western model of modernisation. Using this western model as our point of reference, therefore, it is rather difficult to understand China and the processes that are taking place there. China is a developing and a developed country at the same time as it carries the main features of both. China's GDP exceeds that of the USA – yet there is severe poverty in this country: over 150 million live there in deep poverty today. (Szunomár, 2012)

China's power politics also differs from the western concept, yet its unique foreign policy deviates from its own former set of principles in a way that continuity exists only over a very broad time horizon. China is a multi-coloured "civilisation-state" and, for millennia, has been held together by the "consciousness of unity", which is the most important political value even in our days.

In its efforts to build relations with other regions and countries, China gives preference to the means and tools of soft power over hard power. Nevertheless, the doctrine of "peaceful rise" ("heping jueqi") – and its reinterpreted form, "peaceful development" ("heping fazhan") – implies its systematic preparation to have a world power position. (Pathak, 2015)

What path China will walk in the 21st century may be fundamentally significant in a civilisation history respect – and, similarly, to what extent and with whom China is willing to cooperate with carries a significant message.

In diplomacy, China aims at communication rather than confrontation; it seeks partnerships, not allies. China intends to pursue an independent and peaceful foreign policy, it will protect its reasonable interests, and commits itself to build stable and well-balanced relationship frameworks with the major powers. China, however, wishes to take part in global governance, it wants to play an active role in the reformation and development of the system of global governance, and wishes to contribute to global governance with Chinese wisdom and power. One of the key initiatives of this policy is One Belt One Road (OBOR), which can be considered as a public good that China provides for the world. OBOR is a comprehensive initiative, which contains political communication, the coordination of policies, infrastructure deployment, connection, trade and construction projects, financial integration, as well as interpersonal relations. **(Tianping, 2018)**

A MULTIPOLAR WORLD ORDER WITH SOFT POWER?

"A world order with multiple centres has opportunities to offer" (Orbán, 2018, p. 42)

China's rise as a world power means the appearance of a new political pole. In modern history, it is the first time that a developing country has been the world's largest economy and that such a position has been held by a non-western state but one with different historical and civilisation roots. (Jacques, 2010). The Chinese economic miracle can be best understood in the light of Joshua Cooper Ramo's "Beijing consensus" theory (despite all the shortcomings of this theory), i.e. in a special Chinese development model. In his scandalous study, the author identifies three factors as the motors of China's economic development: innovation and continuous experiments with new ideas, observing sustainable development and the principle of the fair distribution of goods and the emphasis on "China's own way" and its desire for self-identification. (Ramo, 2004) Ramo's "Beijing consensus", which is compared to the "Washington consensus", is least liked by the Chinese: they insist on the "specially Chinese socialism" and the "socialist market economy" interpretation models.

The Chinese catching-up model is modernisation and the return to the country's own traditional system of values at the same time. While the majority of economic reforms have been based upon the adaptation of the elements of the western model, the Chinese process of position building is a unique concept, which is based on the country's own tradition. Szunomár (2012, p. 14) created a new concept for democracy as understood by Chinese traits: she calls it "sinocracy".

The way in which hard power is overruled by soft power can also be considered as a paradigm shift. Confucianism is experiencing a renaissance. "*The weak and supple overcomes the strong and hard. Fish must not emerge from the deeps; the vital tools of a state must not be revealed." (Laozi: The Dao De Jing. Poem 36)*

The concept of soft power has always been a well-known concept in China. After it was introduced into the public domain by Nye (2004), Chinese political scientists also began to study it and, not long after, terms referring to soft power were introduced into the vocabulary of government politics ("ruan shili", "ruan Liliang", "ruan guoli", "ruan quanli"). The desire and need to increase soft power is most strongly present in foreign economic relations and upon it is built the concept of the harmonic world order – which is indisputably conscious position building. (Szunomár, 2012)

In the 1990s, when attempts were made to express power in figures and make it measurable, Chinese scientists worked out the concept of Comprehensive National Power (CNP) (zonghe guoli). (Rácz, 2007) In the calculation of this index, "soft" factors are also taken into account in the measurement of economic, military, natural, political, social, international relations, scientific, technological, educational and other resources. "Comprehensive national power" has become a basic concept in Chinese political thinking and, as part of that, "soft power" has also become a recognised political concept. (Li Mingjaing, 2008, p. 6)

At the 60th anniversary UN Summit in 2005, President Hu Jintao identified the ancient theory of the "harmonic world" (Bell, 2008 pp. 8-13) as the foundation of the new world order, which is "desirable" to everyone. "By a harmonic world order the leaders of China mean a multipolar international system which is free from conflicts, is built on cooperation and offers appropriate conditions for peaceful development to the nations of the world – including, of course, China. Another important feature of China's foreign policy in the new millennium is that the country behaves in an increasingly flexible and adaptable manner and proactively shapes its bilateral and multilateral relations." (Szunomár, 2012, p. 43) In essence, the harmonic world order means a multipolar world, and China truly aims at creating a multipolar world order ("shijie duojihua"). (Cheng & Zhang, 1999 pp. 101-102)

Along with soft powers, China is thus becoming an independent pole of power. Paradoxically, in contrast to the original concept of Nye, soft power gets converted into hard power. (Salát, 2010) According to Khanna, influence can today be increased not through wars but through the deployment of a strong, interconnected infrastructure. It is this strategy that China follows in its OBOR initiative. (Khanna, 2017)

From the point of view of its world power ambitions, the strengthening and deepening of the Shanghai Cooperation Organization seem to be China's number one strategic and economic interest. (Horváth, 2010) The establishment of the Shanghai Cooperation Organization is in reality the institutionalisation of China' influence in Middle Asia, and the New Silk Road project – *whose aim is to re-connect old areas and commercial roads on the Euro-Asian continent, with China being the centre – supports the development of the region's infrastructure and trade, deepens regional economic cooperation and increases China's influence on world economy and politics alike.*

"The world needs to firmly advance all types of regional cooperation as this has proved effective for promoting global development. We need to remain committed to multilateralism, which is the effective pathway to peace, development and the settlement of global issues… Multilateralism is not out of date, but should be carried forward. Cooperation among big countries needs to be strengthened. … Big countries have more resources and more capabilities. They have the responsibility and the obligation to play a greater role in maintaining international peace and security and make more contributions to human development and progress, … global governance should be improved so as to solve the imbalances in world development and realize sustainable growth of the world economy. China is actively participating in global governance." (Wang Yi, 2017)

POST-WEST AND POST-ORDER?

"*The international security environment is arguably more volatile today than at any point since World War II. Some of the most fundamental pillars of the West and of the liberal international order are weakening.*" *(Munich Security Report 2017)*

As a result of the strengthening of rising powers and the changes taking place in the relations between major powers, fundamental changes are taking place in power balance and in

the international order. According to security policy analysts, the world is in the state of the highest level of instability ever, and many used to consider the year 2017 as a critical period. In this critical year, however, it was stated on two occasions that China considered it was high time it took over the world leader role.

Both important speeches (Wang Yi, 2017; Xi, 2017) described China as a responsible major power that is committed to finding the solutions to the problems of the international community but, at the same time, consciously referred to China as a challenger of the United States and drew a contrast with the latter. In contrast to the approach that blames globalisation and recommends isolation and protectionism as the solution, the Chinese government considers that the main problem is that there is no order in the world and, therefore, it proposes the creation of a new international order as the solution. "According to the Chinese government, for the international community to avoid war, it needs an appropriate leader – which is nobody else but China. They use three arguments to support this position. Firstly, China has long and diverse historical experience about development, which enables it to properly respond to challenges. Secondly, the country has the resources required to fulfil the proposed leading position. Thirdly, China has firmly decided to play an active role in shaping international politics." (*Klemensits & Eszterhai, 2017)*

It is a security policy matter, however, how uniform the intellectual space will be in which the attempts are made to respond to the global social, political, economic and ecological issues in our multipolar world. The international order planned by China is not fully compatible with the world order dominated by America. (One must realise that the Chinese narrative draws a distinction between the world order and the international order, as the former, i.e. 'world order', means the world order led by the USA, in China's terminology.)

China cannot fully identify with the world order dominated by the USA. On the one hand, China is supportive of the current international order – on the other, it is a reformer thereof. That is what makes the question of how uniform the axioms will be based on which critical trends and the organising principles of the next few decades can be interpreted essential. Another area we cannot easily forecast is the normative and ideological environment that will exist 35 years hence. (Walt, 2015)

According to the forecasts, in 2050, power will still be in the hands of nation states; there is little chance for the formation of other multinational political entities besides the EU – but it is likely that further small states will be established. The economic performance of individual nations puts a limit to their international influence and, bearing this in mind, the key strategic players will comprise, besides the USA, China, Russia and the EU, India and Brazil. (2050 Africa's Integrated Maritime Strategy)

And although the number of global conflicts has shown a decreasing tendency since 1945, due to the events of recent years and the growing tension between China and America, it continues to be unrealistic to hope that the year 2050 will be much more peaceful than our days. (*Klemensits & Eszterhai, 2017)*

According to the analyses and forecasts of the world's leading think-tanks, the re-division of the world is likely to result in the deepening of geopolitical crises in the future. (Vision–2050; Global Risks 2035). Par excellence, one of the key security policy questions that influence our future is how the world's power architecture will become multipolar. Due to its technological superiority, the USA is likely to retain its supremacy. "And now we are looking only to the future. … From this moment on, it's going to be America First." (Trump, 2017)

At the same time, China and India, through the international institutions preferred by them, will represent the majority of the world's population, which will be increasingly difficult for the USA to counterbalance. It is far from certain that the parallel application of America's

hard and soft powers ("flexible geometry"), even together with the establishment of new institutions and alliances, will suffice to maintain Washington's global hegemony in the second half of our century. (Stancil & Dadush, 2010) It is also important, however, that demographic processes might push American foreign policy in the opposite way, as nearly every third American citizen will belong to the Latin ethnicity by 2060, who – according to research findings – have far more trust in international institutions, e.g. the UN. Transnational threats, climate change, terrorism and the fight of rising nations in the new international order will require America's foreign policy to be far more carefully balanced than in our days. (Sullivan, 2015) In this emerging architecture, European states, according to forecasts, have no other choice than to establish regional alliances and a collective foreign policy.

However, "in the first decades of this century, not only the global issues themselves but also the consequences of the successfulness or failure of their management will have a significant impact on long-term changes, the positions of individual regions and states, and, at the end of the day, on the future of humankind, even beyond the first century of the third millennium." (Simai, 2016, p.12)

We ought to make reference to an expert public opinion research carried out by the Post-Crisis World Institute, according to which the world's biggest problem will be the lack of resources in the future, as the Earth will not be able to satisfy the demand resulting from the increase of its population. While in the 20th century geopolitical competition revolved around the acquisition of energy carriers, by 2050, the fight for water will have become at least as important. (Vision–2050

When discussing the security of the future, the human aspect of security is becoming increasingly important, which is not yet a central topic of the security policy discourse, although its importance in the context of civilisation – at least in the context in which we interpret existence today – is far higher than conventionally examined risk factors. Robots will increasingly force humans out of warfare. Soldiers will be needed but, owing to the fast development of genetic and bio-technology, robots will have capabilities which are considered superhuman today. (Kott et al. 2015) People will lose their controlling role and can be no more than arbiters in the fight between robots.

At the same time, through the amalgamation of the human body and technology, humankind will start a journey whose direction is unpredictable and in which we will no longer be able to control the speed and impacts of development. *(Klemensits & Eszterhai, 2017)*

"Human beings acquired phenomenal power, which surpassed their knowledge as well as their capacity to control it and to control themselves." (Peccei, 1982, p. 26)

THE CHALLENGE AND/OR PARADOX OF CONNECTOGRAPHY

"*There will be lots of tension in the world, there will be lots of conflict, there will be lots of struggle to control resources, economic power and so forth. But it is a very different kind from previous generations and connectivity is the reason why it is so much more complex, but ultimately also so much more stable.*" *(Khanna, 2017, p. 19)*

Today's globalised world features new political and security conditions. As a result, the identification of threats and dangers requires a brand new approach. Connectivity is one of the key drivers of the transition to a far more complex global system. Economies are increasingly integrated, the population is more and more mobile, the cyberspace is less and less distinct from physical reality, and climate change is shaking the fundamentals of our life. The

significant – and often suddenly occurring – feedback loops of these phenomena remain almost entirely incomprehensible. And even if connectivity makes the world more complex and unpredictable, it offers fundamental opportunities to increase collective flexibility. (Khanna, 2017, p. 16)

New types of challenges emerge and, due to their interrelations and mutual impacts, they can be construed in some unique complexity: challenges intertwine and mutually amplify one another's impacts, symmetrically or asymmetrically. These new challenges contain migration, terrorism, organised crime, the environmental security aspects related to globalisation and, in the long term, also climate change and its increasingly conflict generating nature – and, in essence, all of these are related to demographic changes in one way or another. (Major-Čudan, 2017)

"Overall, today's geopolitical situation is characterized by a persistent and multidimensional competition and the parallel weakening of existing relationships. This trend permeates several different sectors and topics, creating an amorphous world order, in which we have to face symmetrical and asymmetrical challenges at the same time. The changes in the balance of power between world powers divert the political energy from the solution of common and important problems (e.g. climate change), and chaos gains ever more ground." (Csizmadia, 2017, p. 88)

The reality of the currently shaping and continuously changing world / international order is the world of geo-economy, in which the nature and mechanisms of fundamental conflicts are different from what they used to be like. "In the 21st century, the world consists of connected networks and, consequently, we have arrived from wars to a "tug of war", as each major power is connected to the others." The nature of geo-political competition has changed." (Khanna, 2017, p. 15) What used to be the war for territory has by now become a war fought for connectivity. Decentralisation is the strongest political weapon of our days. However, even though and while empires are falling apart everywhere in the world, and power is concentrated in the hands of provinces, regions and cities, which aim at achieving an increasing level of autonomy in their financial and diplomatic affairs, another important part and result of decentralisation is also surfacing. These smaller political units, which manage shared resources, are trying to form larger communities in a mere struggle for survival. This trend, as described by Parag Khanna (2017, p. 15), appears from East Africa to South-East Asia: new, dynamic regional alliances are formed along the shared infrastructure and institutions. North America is also developing towards becoming a real supercontinent.

Consequently, the cornerstones of the enforcement of interests have also changed. "The different subsystems of security comprise a complex system (at the international, national and organisational levels), in which interactions are increasingly direct and strong. By our days, the management of even a local disaster or crisis has unavoidably become a complex and, in a sense, global task. (For this reason, for example, modern disaster management systems must be complex and flexible.) … It is an important aspect also in the organisation of defence policies that the establishment of security must also entail opportunities for development, rather than simply being some restriction to maintain integrity. About the security subsystem we must point out that the system and the subsystems are not autotelic: important social and international cooperation expectations exist towards them, which are, at the same time, the content related dimensions of the key preconditions of continuous operation." (Ürmös, 2013, p. 154)

It is beyond doubt, however, that the new responses must be so given to these new challenges that, at the same time, the meaning of the concept of 'security' must also be significantly broadened and reinterpreted in its increasing complexity, which we have been experiencing in recent decades. Security policy has very many different aspects. One that is interesting to

network theory is this whole war on terror. These days the war on terror has been transferred to a network theory basis. After all, in today's conflicts it is not two great armies facing one another, but large armies face little groups who organize in networks. "In the United States, a new doctrine appeared, accordingly, which is called net-war. In the next 30-50 years, all of America's wars will mean fighting against smaller groups, not a real, regular army.

In these cases, fighter planes and tanks will not be as useful. Understanding communities, mapping, emotions, learning who is friend and enemy within a village will be much more important, because the civilians and military active population has become fully intertwined and indistinguishable from one another. We must figure out who is our friend, and who is our enemy. This is very important paradigm shift all over the world." (Barabási, 2018, p. 123)

In the past few decades, the complexity of systems and problems has increased in almost all areas, risks have multiplied, and actual or potential threats have extended to ever broader regions of the world. Of these threats, the ones that increase humankind's destructive power and capabilities are especially dangerous. (Simai, 2016, p. 358)

"According to Kurzweil, while human thinking describes our environment using linear models, in reality the changes of the world around us are exponential, i.e. constantly accelerating. Singularity is when the pace of the changes ahead reaches a point where we cannot reliably predict their effect beyond a certain point relatively close in time, i.e. the event horizon. In Kurzweil's scenario, singularity is a future period in which technological change will be so rapid and far-reaching, that human life will irreversibly change as a result." (Csizmadia, 2017, p. 141)

Different positions exist about the changes generated by accelerating technological development. On the one hand, according to some forecasts, the most suitable solutions to challenges will come from further technology development. In Friedman's vision wars in the 21st century will be characterized by the use of advanced technologies, smaller armies and fewer casualties. The environment and energy will gain importance, and the world's energy supply will be mainly based on energy production systems installed in space. (Friedman, 2011)

On the other hand, there are fears that the Earth's resources will be depleted, and some forecasts, which deal with the controllability of artificial intelligence, do not clearly predict encouraging scenarios regarding the endless development of technology. To quote Simai, it is a fact that past prognoses regarding scientific discoveries and technological development for a 30-40-year period have proven true in a high percentage. There are likely to have been two reasons for this: on the one hand, the high-level scientific knowledge of those who made the prognoses, on the other, the knowledge and application of the chain reactions encapsulated in technological development, whose elements are new ideas, research, new discoveries, inventions and the appearance and dissemination of the resulting innovations. Future research projects have come to the conclusion, mainly from the tendencies of development, that, in the near future, no state can expect a decrease in uncertainty factors or the emergence of a more tranquil, better organised world that carries no major risks." (Simai, 2016, pp. 365-366)

However, from the experience gained during the nearly two past decades of the 21st century, we can conclude that the future of humankind is determined by a chain of challenges whose two extreme points are climate change and social security in a broad sense, deeply embedded in the problem of human security.

Global climate change is tightly related to the problem of social security. The rapid and radical transformation of the physical environment jeopardises the current economic, social and political operation of both global and local societies. Security policy experts all agree that there is another security policy threat factor, which is tightly related to water sources and warming: the shortage of food. Due to increasingly extreme climate conditions, droughts and

desertification jeopardise the Earth's carrying capacity just like the uneven distribution of precipitation in space and time. (Ugrin & Major, 2018)

As a result of climate impacts, the traditional order of life is forced to transform, which, as a spillover effect, impacts the economic and social activities that provide welfare. Social inequalities grow and take root and, as a result, social conflicts and deviance may significantly increase.

According to George Friedman, the new crisis will be that of the middle class. The source of the problem is not inequality but the fact that the middle class wants to have a standard of living which not everyone can succeed in achieving. (Friedman, 2011) It is unclear what this problem means if examined globally, and what answers can be expected to this question.

By contrast, the American National Intelligence Council's volume that deals with global trends describes four possible future scenarios, to be finally shaped by the major megatrends and the game-changers which influence the ultimate outcome. 1. Individual empowerment 2. Diffusion of poverty 3. Demographic patterns 4. Food, water, energy nexus. (Nye, 2013 p. 143)

Our planet is basically overpopulated, this is beyond doubt, but we do not know when the activities of humankind and the exploitation of the natural environment will reach the point of no return. In our days, environmentally conscious development is part of the political order of the day – yet we can take it for granted that conflicts will arise in this sector that will have an impact on all the others. The most sensitive conflict zone, however, is that of efforts for the acquisition of drinking water sources. (Ürmös, 2013, p. 154) And that is fight for life in the most direct sense.

Going forward, beyond the 21st century, one challenge is likely to be our system of values, as a consequence of the growing uncertainty around man's anthropological self-reference. We must cope with these challenges already in the post-human world. It is very essential, though, along what coordinates we start to construe that reality.

SUMMARY

"These paint a picture of the world where the possession of power will be just as important as chasing profits, and this will be coupled with the increasing economic engagement of the state; economic warfare will undermine economic integration; multilateral systems will regress to the regional level instead of becoming global; oil prices will be low and fickle, therefore countries will compete for markets rather than resources." (Csizmadia, 2017, p. 90)

Finding the balance in a world that is becoming multipolar, the integration of individual states with different interests, political cultures and histories into the changing global system and the interrelations between them will be fundamental security policy issues in the decades to come. (Simai, 2016, p. 364)

At the same time, the shift in the global system of powers in the fight for markets, the instability of the financial world, poverty and demographical issues, together with climate change, comprise a complex security related source of danger and challenge. In this scenario, in the course of the management of these problems not only those organising principles will be defined along which solutions can be construed but the interest relations between subsystems will also receive a unique function and, in essence, reactions may increase the complexity of challenges.

Paradoxically, the context of security policy starts to make sense not when one establishes cooperation between conflicting interests – in any sense – but when one creates dynamic balances between and in competitions for cooperation.

"This shows that we are witnessing the rise of geo-economics, a competition in the language of trade but with the logic of war." (Csizmadia, 2017, p. 90)

The question thus remains: to what extent can we expect a truly harmonic and life-centred world if and when soft power, which gets manifested in China's strategy, dominates?

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SOURCES OF DANGER AT THE SITE OF DISCOVERY OF SECRET LABS FOR DRUGS PRODUCTION

Božidar Otašević, PhD
Ministry of Interior of the Republic of Serbia,
bozidarotasevic@yahoo.com

Saša Atanasov, PhD
Faculty of Law, University of Pristina temporary settled in Kosovska Mitrovica,
sasa.atanasov@pr.ac.rs

"Detailed and careful observation and spotting of details can save your life"!

Abstract: Since 2003, 10 secret laboratories for the production of synthetic drugs, mainly amphetamine and methamphetamine, have been discovered in Serbia. The discovered laboratories exceeded the needs of the Serbian drug market with their production capacities, possessed highly professional equipment, and only some had very professional staff who worked there. In the future it can be expected that criminal groups will direct the production of synthetic drugs to mini-labs of so-called kitchen type, which will increase the availability of synthetic drugs in the local market and directly lower their price. Regardless of their size, these laboratories are highly risky, especially due to the presence of a variety of chemicals that are generally poisonous and flammable, and certain chemicals in contact with air or other chemicals can cause fires and lead to explosion. Also, due to the improper disposal of chemical waste, illegal laboratories pose a great danger to the environment. Police, as well as other authorities involved in suppressing these criminal activities, must be very careful during their treatment, since drug users with a high rate of infection of various infectious diseases, primarily HIV / AIDS and hepatitis, can also be the source of danger.

In this paper we discuss the sources of danger and possible consequences in case of discovery and dismanteling of drug production factories.

Keywords: police, secret labs, chemicals, fires, explosions, poisons.

INTRODUCTION

Secret laboratories are not a novelty for those dealing with the problem of illegal production of synthetic drugs. Namely, an article entitled "Fire Department should know about secret drug labs", appeared in the United States already in November 1970, in the magazine Firefighter National Association (Vernon, 2009), so even then, and also today, illega production of methamphetamine, which is simple and inexpensive, is one of the key problems of the United States. According to the FBI, in some cities in the western part of United States, the number of

arrested persons involved in methamphetamine production exceeds the number of arrested persons who were driving motor vehicles under the influence of alcohol. Also, according to DEA data, in this country about 6500 methamphetamine lab incidents are reported annually. This includes laboratories, dumps for chemical waste disposal and equipment for illegal production (Vernon, 2009). It is therefore important that those who deal with the prevention and detection of secret laboratories respond correctly and professionally to the challenges they are faced with before secret laboratories cause damage to human health, the environment and people's property. From a criminalistic point of view, but also from the aspect of safety and environmental protection, it is necessary to know the method of detecting and dismantling secret labs for drug production and to standardize the security measures applied during the processing of the site of the criminal event.

The first secret laboratories for the production of synthetic drugs on the European continent were discovered in the mid-eighties, first in Germany and the Netherlands, then in Belgium, Denmark and Luxembourg, so that they are now more present in almost all European countries. Interestingly, the countries of the former eastern bloc, such as the Czech Republic, Poland and Hungary, have developed synthetic drug production (primarily amphetamine), which can be compared with production in the Netherlands, a country where amphetamine is traditionally "illegally produced". Practitioners believe that such a situation could be the result of, on the one hand, the existence of a large number of trained chemistry personnel in Eastern Europe and the police's unwillingness to adapt quickly to new circumstances, that is, the lack of legal regulation for situations that were not frequent before, and, on the other hand, inflow of mafia capital in these countries.[1]

In recent times, similar laboratories have been discovered in both Serbia and in the region. For example, the first laboratory for the production of synthetic drugs in Serbia was discovered in 2003. It turns out that to this day, it is the largest illegal laboratory that was discovered in the Balkans. The main organizer of this production was the doctor of pharmacy M. Z. the owner of the company "Lenel Farm". In this police action, which lasted nearly a year, about 10 000 MDMA ecstasy tablets and about 20 tons of amphetamine sulphate - a mixture of ecstasy production was seized, which worth millions (about 10 million euros), while the value of the discovered pharmaceutical "machine" was somewhat smaller. Also, in the period from 2003 to 2017, in Serbia, 10 operational narcotics - laboratories dealing with the illegal production of synthetic drugs, 93 laboratories for the production of marijuana (different production capacities and with different quality of equipment) were discovered exclusively with the operational work of the police, and also an illegal laboratory for the production of hallucinogenic mushrooms from the family of „Psylocin".[2]

In the above-mentioned period, the highest number of illegal laboratories for the production of synthetic drugs was discovered in Belgrade and its surroundings (StaraPazova) in total of 8, and one illegal laboratory in Novi Sad and Dimitrovgrad. Of the total of ten discovered laboratories, 7 engaged in illegal production of amphetamine, 2 in illegal production of ecstasy and 1 production of synthetic drug metakvalon. Out of a total of 8 discovered illegal laboratories in Belgrade, only two were discovered in the narrower city core, while 6 were discovered in the outskirts of the city. Two laboratories were installed in an apartment and 8 in specially equipped rooms (Otašević, Atanasov, Dostić, 2018:80). The laboratories were very profitable and their production capacities exceeded the needs of the Serbian narcotics market. All detected laboratories possessed professional equipment and could be characterized as "super labs". It is not surprising that the level of sophistication of discovered laboratories is directly proportional to their production capacities. Police and judicial data on how to obtain recipes

1 See more: *Droge i opojnasredstva,* PriručnikInstitutabezbednosti, Beograd, 2005.p. 83.
2 Data of the Department for Analytics of the Ministry of Interior of the Republic o Serbia.

for the production of syringes is very difficult to obtain, but in over 80% of cases, during the raids in the laboratory, recipes for production and internet instructions were found, while in 50% of cases the manufacturers had prior chemical or pharmaceutical experience.

The flexible nature of recipes that involve the illegal production of synthetic drugs has enabled the use of various chemicals used in the illegal production of synthetic drugs. In fact, based on the seized chemicals, we can conclude that the final product (drug) can be obtained by various combinations of precursors, reagents and solvents. Bearing in mind the above, we think that it is necessary to understand the chemical processes that take place in illegal laboratories in order to develop strategic preventive measures that have lasting effects on reducing the harmful effects that result from illegal drug production.

The amount of seized drugs is different, but if we compare the ratio of the quantity of seized drugs and the production capacity of the discovered laboratory, it can be concluded that the producers did not leave the "goods" standing for long, which indicates a high fluctuation rate. Also, equipment and chemicals for production are located in the immediate vicinity or in the same place where the laboratory is installed.

TYPES OF SECRET LABS

Secret laboratories are places where illegal substances, most common drugs, are produced. However, they can also produce explosives, biological and chemical weapons. In criminal practice, there is a wide range of equipment in these spaces. This is influenced by a number of factors: first of all, whether it is organized crime groups or individuals; whether they have competent or less competent persons; the kind of drugs that are produced in them; financial possibilities of criminal groups; availability of equipment and chemicals, and so on. Such laboratories can be installed in various locations such as apartments, houses, basements, garages, auxiliary rooms, sheds, attics, means of transport, trailers (Nin Chiu et al., 2011: 356), and it is equally possible to form them in urban and rural areas. Regardless of their size, the production principle is the same for all.

In a study conducted in the United States based on a review of the dossier on discovered laboratories for the production of synthetic drugs, containing data on the type of facilities in which the laboratories were installed, the following conclusions were drawn: 52% of the discovered laboratories were installed in private homes, while only two houses were rented, 6% were installed in flats: other laboratories were housed in constructed buildings 15% (some kind of halls) and 15% were the so-called "boxing laboratories" that were mobile in character, installed in motor vehicles. When it comes to commercial facilities, 6% of laboratories were in containers intended for storage, while the rest were stored in warehouse spaces. The results of this research have shown that the level of sophistication of these laboratories is directly linked to their production capacities. For example, in only 16% of cases, laboratory equipment was handmade, while in other 22% used equipment was a mixture of handmade and professional items, while in the remaining 62% of cases the equipment used was professionally produced (Diplock, et al 2005: 6).

Secret drug-producing laboratories can be classified in relation to the type of drugs they produce, such as laboratories for the production of (semi) natural drugs, synthetic drugs and drug designers, in relation to production capacities and quality of production, to "kitchen laboratories" and laboratories for mass line production.

Kitchen Laboratories

Kitchen laboratories are the most frequent laboratories in Western European countries, above all in the Netherlands. They employ amateurs and persons with little chemical education, which usually find their drug recipes on the Internet. These are mostly drug users who use their own product, but they also sell it to be able to finance new production and ensure their survival. Laboratories are usually located in one location, where all stages of the production process are performed.

The equipment used in such laboratories is a mixture of glassware and the most common kitchen equipment. These spaces often do not deserve to be labeled as labs, because it is sometimes sufficient to have only plastic bottle and little luck for the one who is "mixing substances" to make illegal psychoactive substances. Chemicals needed for the production of drugs "operators" are supplied in pharmacies, through friends working in the chemical industry, as well as in consumer goods stores. Also it happens that shops and pharmacies are burgled in which precursors needed to produce a certain drug. The chemicals needed for production are purchased in relatively small quantities, which makes it very difficult to locate them. Such laboratories are located in family rooms, and manufacturers are also drug dealers. We think that the time of those who produce and sell drugs themselves has passed. Today, due to the thorough work of the police in all developed countries, only large and well-organized criminal groups can deal with the production of drugs, because only powerful gangs can handle the strength of an organized state. (Otašević, Golubović, 2009:179). In our country, kitchen laboratories are usually those laboratories that produce cannabis in controlled conditions (Cannabis Sativa) and synthetic cannabinoids which are contained in the same plant.

Laboratories for mass line production

Laboratories for mass production are well-organized laboratories, with highly professional equipment and professional staff. Criminal groups that install this kind of secret labs, deal with drug production excusively to gain huge financial profits. Persons who work in them are usually not drug users. The work of such illegal laboratories can only be provided by highly organized criminal groups, which have huge amounts of initial raw materials or a certain precursor which is the basis of a synthetic drug. Also, enormous amounts of money are needed to procure professional chemical equipment, but also to pay the persons of the chemical and pharmaceutical profession that manages illegal drug production (Milošević, 2010:125). The production process of these drugs can be seen through four separate phases: the extraction phase, the conversion phase, the synthesis phase, and the tabletting phase. Typically, all phases of the production process take place at different locations, with the aim of preventing the detection of the work of an illegal laboratory. In these laboratories, there is usually a person who oversees all phases of production, the so-called "lab-technician", who has excellent chemical and pharmaceutical education. Also, there are staff who keep the laboratory away from detection, which have nothing to do with the production process itself.

Criminal groups which organize work in such laboratories have a built-in network that enables the purchase of the necessary chemicals and equipment. Here is a separate distribution network of the final product from the production process itself. Drug makers never participate directly in street sales.

The number of large laboratories involved in mass production is in huge increase everywhere in the world, so their detection is a priority in the fight against narcotics crime. The largest amounts of semi-natural and synthetic drugs, especially marijuana and methamphetamine, are generated precisely from these "super labs", as they are named by some experts (Weisheit, 2008: 26).

SOURCES OF DANGER

The production of synthetic drugs in illegal laboratories is a difficult, serious and dangerous job. It is a serious business because in hidden and inadequate conditions, a small number of people need to organize chemical production, procurement and storage of chemicals and equipment. It's a dangerous job because those who stay in them are directly involved in different stages of production and therefore have short or long-term health consequences. Namely, many of the chemicals used in these processes are carcinogenic or can damage the heart, lungs, liver, and blood. Inhalation of chemicals and gases that are the product of the production process can cause: cough, chest pain, rapid breathing, poisoning, nausea, fainting and disorientation.[3]Also, the punishments in case of detection are very severe and all who participate in illegal drug production are aware of that.

The degree of risk is particularly increased if it is known that secret laboratories are often run by people with little knowledge of chemistry - only rare individuals have some kind of formal chemical education. Most of them learn through the so-called underground sources and networks (Pennell, et al.1999: 20) Many of these chemicals are dangerous for one reason or another, but they become even more dangerous when they are used by chemists - amateurs working in essentially improvised laboratories (without adequate ventilation, temperature control and other protective measures). As we have already mentioned, secret labs for mass production are different from small "kitchen laboratories" by location, equipment and expertise of the staff involved in illegal production. Therefore, in small laboratories, there is a much greater likelihood of fire and explosion coming out, because they have objectively less qualified personnel, using primitive equipment and facilities, which has a direct impact on the amount of gas released during the production process. However, this is not the rule, because in the criminal practice there are findings of a wide range of equipment in these areas. This is influenced by a number of factors, and everything is different from state to state, whether it is an organized criminal group or an individual, whether it is about experts or people who are experimenting, the type of drug produced, the financial possibilities of the criminal group, etc.

Table 1 shows the most frequent sources of danger and possible consequences in cases of installation of secret labs.

TableNo. 1. Sources of danger and possible consequences

Sources of Danger	Possible Consequences
Chemicals	Extremely toxic and very volatile - a very toxic atmosphere
Damage and leakage of chemicals from containers	Pollution of environment
Fire	Can produce extremely toxic and cancerous evaporation, explosions
Air– breathing	Can cause direct poisoning or cancer
Unsuitable chemical mixtures or varnishes, so-called. incompatible chemical reactions	Can cause explosions or fire
Electric installations	Can be sources of explosions or fire

3htpp://methoide.fcm.arizona.edu/infocentar/index.cfm?stid=187, accessed on 18.03.2018.

Intentional installation of chemical traps	Traps at the entrance or inside the laboratory - mini bombs, landmines, warning systems that may warn of a break in the laboratory
Drug users	Very often infected with infectious deseases HIV/AIDS, tuberculosis, varios skin changes

According to the FBI data, at least three illegal producers are killed in secret laboratories in the United States annually due to incidents caused by poisoning or explosion, while many others suffer injuries or burns (Vernon, 2009: 6). The above data is confirmed by the results of the research carried out in the USA, where in 33% of the cases the containers were punctured, which caused the uncontrolled leakage of chemicals, while in 64% of cases there was a risk of burning. Therefore, it is not surprising that in 33% of cases the fire occurred during attempts to install the laboratories (Diplock, et al 2005: 10).

In addition to the risk of fire and explosions, secret labs pose a danger to the environment due to improper disposal of chemicals and equipment. It is unlikely that chemicals necessary for production and chemical waste will be disposed in accordance with regulations governing the storage of hazardous substances, bearing in mind the criminal nature of these activities. Therefore, secret laboratories pose a health risk not only to those who work in them, but also to people who are in the immediate vicinity of the secret laboratory, as well as to personnel involved in their discovery and dismantling . In these cases, the pollution of the environment is both large and long-lasting, and in addition, after the cleaning of the polluted site, it will not be suitable for resettlement. It must be borne in mind that cleaning of the site is extremely expensive and highly risky. Materials from the laboratory can be absorbed through the skin. Chemicals and fumes penetrate the walls, wood, plaster, carpet and surrounding floors and can cause cancer, brain damage and immune problems (Snell, 2001).

An interesting example is from May 2013 when the members of the Criminal Police Directorate, the Service for Combating Organized Crime of the Serbian Ministry of Internal Affairs in Nova Pazova, discovered a secret laboratory for the production of synthetic drugs, a methaqualone[4], which until then was rare in the Serbian narcotics market. In this police action, three persons were deprived of their liberty - H.S. (1970) and H.B. (1963), both from Nova Pazova and M.G. (1957), from Belgrade. The laboratory was installed in the basement of the family house of H.S. Police entered the courtyard of the house, at the very entrance of the secret laboratory, at the time when the process of producing narcotic drugs was ongoing, and arrested H.B. and M.G. In this police action, laboratory equipment, utensils and chemicals necessary for the production of the drug were discovered, among other things, and also 50 kilograms of anthranilic acid were detected, as well as about 50 liters of " benzylmethyl ketone BMK"[5],placed in a plastic and unmarked barrel. A search of their houses and other premises, as well as inspection of the vehicle, it was found and seized 10,000 euros, a computer, lap top, paper with chemical formulas and a recipe for the production of synthetic drug "methaqualone", litmus paper for determining PH value during chemical reactions, two passports and personal documents issued in Venezuela in the name of HB.

The above example from the police practice confirms that if in a secret laboratory an anthranlic or acetylantranilic acid and toluidine are found, or if some individuals illegally procure these chemicals, it is almost certainly planned to synthesize the methaqualone.

4 Methaqualone is a very popular synthetic drug all over the world, causing sedatives soothing effects. As a pure chemical (base), with temp. 113-115°C, it is insoluble in water, but it is soluble in alcohol, chloroform and ether. In synthesis, instead of anthranilic acid, acetylantranilic acid can be used, making simple synthesis even more simplified.

5Precursor of first cathegory used for production of synthetic drugs.

It is interesting to note that the very process of drug production in this laboratory itself could cause significant pollution of the environment and serious health consequences for the population itself, due to the unsuccessful handling of chemicals, and due to improper disposal of chemical waste.[6]

These dangers are becoming more and more apparent today, and many laboratory operators release toxic waste into drains of households, yards, fields, and rural roads. Cleaning of such contaminated space is very expensive, so it is unlikely that the owners of the facilities in which the laboratory was installed will preserve evidence of its existence and report the case to the police or other competent authorities. Knowing how expensive decontamination of polluted space is, they will remove evidence from their property by illegally transporting waste to legal or illegal landfills and thus transfer the costs of cleaning to other entities (Vernon, 2009).

How much illegal production of synthetic drugs has a serious impact on the environment is sufficiently explained by the fact that the production of one pound of methamphetamine releases toxic gas in the atmosphere and creates 5 to 7 kilograms of toxic waste.[7]

Another danger associated with laboratories are frequent cases of intentional installation of explosive "traps" in order to injure police officers. Because of this, during the raid it is necessary to take into account the hidden traps that can be placed in the laboratory, such as: landmines, acid bombs, warning systems that are in progress, etc. These hidden traps are sometimes designed to protect the lab when there is no one in it or for warning and timely escape from a secret laboratory when it is discovered. Criminal practice also knows other methods of security that were applied by criminal groups, including electronic surveillance, the use of closed rolling shutters on doors, guard as physical control, etc.

It can be concluded that the place where the secret laboratory is installed is very often a combination of various danger for incidents, primarily caused by the dangerous chemicals present there. Therefore, police officers who are not trained to detect and dismantle secret laboratories and who do not carry the means of protection should not enter the premises suspected of having such laboratory in it. When entering the laboratory, it is necessary to:

- Position personnel and vehicles for intervention opposite from the direction of wind blowing.

- Ensure air flow in order to reduce the risk of possible explosion.

- Turn off all sources of heating apparatus and equipment. This must not be done in such a way that the electricity in the entire facility is turned off.

- If cooling of apparatus is turned on, it should be left on. Cooling is done with water flowing through the cooling pipe. The rule is not to close water tapst if they are open until their function is determined.

- Electric mixers that mix chemicals in balloons or other vessels, if caught in work, must not be turned off.

- Preserve the structure of the site in order not to damage the evidence that is relevant to the criminal proceedings.

- Disable access to themedia and strictly prohibit sightseeing (Donnell, 2004:37).

- Carry out decontamination of the official person - body and clothes, do thorough wash of face and hands.

- When detecting and disassembling a secret laboratory, police officers should never:

6 Data of the Department for Analytics of the Ministry of Interior of the Republic o Serbia.
7 Pound is a mass unit in some countries of the English speaking region, especially in the United States. An international pound is equal to 0.45359237 kg that is about 453 grams.

- spend a long time in the laboratory;
- Touch or test equipment or substances in the laboratory, move containers with chemicals;
- smell objects and chemicals;
- turn on and off switches and use equipment that can be found on site;
- use flash devices or any type of flash,
- use the radio inside the building;
- Smoke, eat and drink on the spot.

CONCLUSION

Illegal production of synthetic drugs in secret laboratories is a serious and dangerous business, both for those who reside in them, and for those involved in the process of detecting and proving these illegal activities. Chemicals used in the manufacturing process can cause cancer, brain damage, and immunological problems. The process itself can cause fires, explosions, higher pollution of the environment and serious health consequences for the population itself, due to the incompetent handling of chemicals, as well as due to improper disposal of chemical waste. In small laboratories there is a much greater likelihood of incidents (fire and explosions), because they have objectively less qualified personnel, use primitive equipment and facilities, which has a direct impact on the amount of gas released during the production process. These laboratories are not dangerous because of the amount of drugs they produce, so from the point of view of the spread of narcotics, mass-production labs should have priority in detection compared to small ones. However, from the aspect of human safety and health and from the aspect of environmental protection, the detection and dismantling of mini laboratories is very important.

Police officers who are not trained to detect and dismantle secret laboratories and who do not carry the means of protection should not enter the space suspected of having such a laboratory in it. In the case of a larger laboratory, it is reasonable for the participants in the action to be equipped with appropriate protective equipment. In the police of developed countries, this equipment has multiple levels of protection, and which equipment will be used is decided by the manager of the action in accordance with the risk assessment made on the basis of available intelligence data. The priority for all those involved in the discovery and dismantling of secret labs is security. However, we must be aware of the fact that it is not always possible to anticipate and solve all security issues that may arise during the laboratory raid and dismantling of labs, which is why the main rule to be followed is that only respecting basic security procedures, injuries and other unwanted consequences will be reduced to a minimum.

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TERRORISM AS A MEANS OF HYBRID WARFARE

Vladan Mirković
Faculty of Law, University of Novi Sad

Abstract: In this paper, terrorism will be analyzed as one of the means of national security policy which states use in order to avoid the open use of force in international relations. More precisely, terrorism will be analyzed as one of the means of hybrid warfare. The term "hybrid" suggests that it is a type of war that unites different elements of known wars and war doctrines. It is a total war that is conducted in armed and non-armed means, it includes conventional and unconventional military doctrines and goals, taking place in all spheres of social life (economy, information, law, culture), thus deleting the border between war and peace. The main aim of modern warfare is shifted from controlling a territory to controlling the public opinion and ensuring the legitimacy of the measures that have been taken. In this sense, terrorism, along with other non-armed means is used in order to create a situation which could lead to a regime change or to justify the open use of force by the most powerful countries in the world, especially the United States. This construction serves as a framework for analyzing the place and role of terrorist groups in the security policy of the great powers which use these groups to legitimize their own actions on the internal and international level.

Key words: hybrid warfare, terrorism, humanitarian intervention, political control.

INTRODUCTION

Legal restraints on the use of force in international relations, the intention of great powers to obtain legitimacy, different interests of those powers in the multi-polar world, development of weapons and other dual-use technology make open use of force in international relations very unfavorable. However, an intention to secure vital national interest remains, so national decision makers have to invent and deploy covert means to secure national interests. This is especially true when it comes to those states which are able to project their power across the world and which organize, finance and direct terrorist groups and organizations in order to protector achieve their national interests. Using those terrorist organizations as surrogates, an attacking state makes favorable circumstances for a regime change or for launching a humanitarian intervention against the targeted state. Here it is important to accentuate that term "terrorism" would be used for the situation in which a group, organization or individual commits an act of violence for political purpose, regardless of whether that act was labeled as a terrorist attack or not by any of the actors involved in the particular situations.

In this paper, the United States is the subject of the analysis for several reasons. First and foremost, there is an eye-catching coincidence between geopolitical or economic interests of the United States in particular areas and the existence of terrorists or other kind of political disorder in that area. Furthermore, the United States has for years been the most powerful military and political force capable of projecting power at any place on the planet and, on the

other hand, numerous manuals of the US military in which the terms and war doctrines are defined are available to public. Therefore, those manuals could have tremendous importance in proving of the thesis that states use terrorism as a means of hybrid warfare. Based on this, it is possible to discover and present the tactics and the methodology of the subversive operations which could be applied to other countries, but depending on the possibilities, other countries probably undertake the mentioned actions to a smaller extent.

DIFFERENT UNDERSTANDINGS OF HYBRID WARFARE

The use of the term "hybrid" in combination with war, warfare, threat and other hybrid-related concepts have been raised during the last decade. Numerous papers emerged, especially after the Russian intervention in Ukraine, thanks to Western scholars who mostly suggest that a new kind of war is threatening the security of the United States and its European allies. However, covert and clandestine operations which are conducted mostly by the US Army special forces have the same content as actions that Western scholars call hybrid warfare conducted by Russia in Ukraine. All this suggests that unique approach to hybrid warfare does not occur. Understandings of hybrid warfare range from denying it, because it pertains to already existing war doctrines, to accepting a new quality of mixture of tactics, means and technology as a new warfare. For example, "U.S. Special Operations Command officials, though, do not use the term hybrid warfare, stating that current doctrine on traditional and irregular warfare is sufficient to describe the current and future operational environment" (Subcommittee on Terrorism, Unconventional Threats and Capabilities (STUTC), 2010:2).

According to Field Manual No. 3-05.201 unconventional warfare (UW) represents "operations conducted by, with, or through irregular forces in support of a resistance movement, an insurgency or conventional military operations" (Field Manual 3-05.201, (FM), 2007). "This definition reflects two essential criteria: UW must be conducted by, with, or through surrogates; and such surrogates must be irregular forces. Moreover, this definition is consistent with the historical reasons that the United States has conducted UW. Examples show that UW was conducted in support of both an insurgency, such as the Contras in 1980s Nicaragua, and resistance movements to defeat an occupying power, such as the Mujahedeen in 1980s Afghanistan." (FM 3-05.130, 2008:1-2) While unconventional warfare considers another state as an adversary, irregular warfare (IW) is "a violent struggle among state and *non-state actors* for legitimacy and influence over the relevant populations." (FM 3-05.130, 2008:1-4) "In April 2006, the Pentagon drafted the execution roadmap for IW as a means of combating this growing threat from actions beyond conventional state-to-state military conflict. The constituent activities of IW are:

Insurgency; COIN (Counterinsurgency);UW (Unconventional warfare); *Terrorism;* CT (Counter terrorism); *FID (Foreign Internal Defense);*Stability, security, transition, and reconstruction (SSTR) operations; Strategic communication (SC); PSYOP; Civil-military operations (CMO);Information operations (IO);Intelligence and counterintelligence (CI) activities; Transnational criminal activities, including narco-trafficking, illicit arms dealing, and illegal financial transactions that support or sustain IW and Law enforcement activities focused on countering irregular adversaries"(FM 3-05.130, 2008:1-2).

Marine Corps officials use the term "hybrid" to describe the potential threat posed by both state and non-state actors. Special Operations Command officials believe that hybrid warfare is not a new form of warfare; rather it is synonymous with full spectrum conflict and is already adequately covered in current doctrine (STUTC, 2010:2).

Military historian Peter R. Mansoor sees hybrid war as a combination of the existing war doctrines, defining it as a "conflict involving a combination of conventional military forces and irregulars (guerrillas, insurgents, and terrorists), which could include both state and non-state actors, aimed at achieving a common political purpose. Viewed from this perspective, hybrid warfare is clearly nothing new. There are numerous examples of hybrid techniques and approaches at the tactical, operational and strategic levels stretching back at least as far as the Peloponnesian War and the writings of the Chinese philosopher, Sun Tzu, in the fifth century BC. Irregular fighters have proved to be the bane of numerous conventional militaries" (Wither, 2016: 74).

Previously mentioned definitions suggest that "hybrid warfare" could occur in informal usage as a generic term for a wide range of activities that pertain to already accepted war doctrines, but definitely not as an officially recognized doctrinal term because it would bring confusion to the existing ones.

On the opposite side of the spectrum there are definitions in which changes in security environment and new tactics of warfare are considered to bring qualitative changes to modern warfare. "The blurring of modes of war, the blurring of who fights, and what technologies are brought to bear, produces a wide range of variety and complexity that we call Hybrid Warfare. Hybrid Wars can be conducted by both states and a variety of non-state actors. Hybrid Wars incorporate a range of different modes of warfare, including conventional capabilities, irregular tactics and formations, terrorist acts including indiscriminate violence and coercion, and criminal disorder. These multi-modal activities can be conducted by separate units, or even by the same unit, but are generally operationally and tactically directed and coordinated within the main battlespace to achieve synergistic effects" (Wither, 2016: 74).

Mattis and Hoffman think that "irregular methods—terrorism, insurgency, unrestricted warfare, guerrilla war, or coercion by narco-criminals—are increasing in both scale and sophistication and will challenge U.S. security interests globally. Such irregular challengers seek to exploit tactical advantages at a time and place of their own choosing, rather than playing by our rules. They seek to accumulate a series of small tactical effects, magnify them through the media and by information warfare, to weaken U.S. resolve. This is our most likely opponent in the future… This unprecedented synthesis is what we call Hybrid Warfare" (Mattis & Hoffman 2005:1).

Michael Miller defines a hybrid war in the following way: "Hybrid warfare is the use of conventional and unconventional ways and means—by any combination of state and non-state actors—within the same battlespace. Conventional and unconventional ways and means include forces, weapons and tactics, and are characterized by the use of modern technology and a high degree of unity of effort between regular and irregular forces" (Miller, 2015:4).

There we will also mention Andrew Korybko who said that "Color Revolutions and Unconventional Warfare represent the two components that form the theory of Hybrid War, the new method of indirect warfare being waged by the US" (Korybko, 2015:10).

All the mentioned definitions, regardless of whether they take "hybrid" as a generic term for existing terms in war doctrines or use it to label a new kind of warfare, suggest that modern war involves a wide range of activities. It is a total war that is conducted by armed and non-armed means, it includes conventional and unconventional military doctrines and goals, taking place in all spheres of social life thus deleting the border between war and peace, war and politics. Conventional war is the only visible part of protracted conflict which takes place in the situations when all others means could not provide a desired result. A very useful means to provoke conventional war or military intervention is terrorism, which brings a lot of social disorder, uncertainty, violence and massive violation of human rights, creating a situation in which the label "humanitarian catastrophe" could be placed very successfully.

Such a label constitutes a legitimate reason for conducting humanitarian intervention against or in the state where the previously mentioned violations occur, thus connecting military and non-military means in achieving a single political goal.

TERRORISM AS A MEANS OF HYBRID WARFARE

"Most people have a vague idea or impression of what terrorism is, but lack a more precise, concrete and truly explanatory definition" (Hofman, 1998:13, see Schmid, 2005:376). However, the lack of a unique definition is not just the problem of the international community or international organizations. The same problem occurs even in a single country, where different agencies which confront terrorism have different definitions of terrorism. Take for example the United States which is the subject of analysis:

The Department of State and the US Intelligence Community are guided by the definition of terrorism contained in Title 22 of the US Code, Section 2656 f (d):

- The term "terrorism" means premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents;
- The term "international terrorism" means terrorism involving the territory or the citizens of more than one country;
- The term "terrorist group" means any group that practices, or has significant subgroups that practice, international terrorism (CIA, 2018).

According to FBI, international terrorism involves acts which are perpetrated by individuals and/or groups inspired by or associated with designated foreign terrorist organizations or nations (state-sponsored). While d**omestic terrorism involves acts which are p**erpetrated by individuals and/or groups inspired by or associated with primarily U.S.-based movements that espouse extremist ideologies of a political, religious, social, racial, or environmental nature (FBI, 2018).

"The Department of Defense (DOD) defines terrorism as the unlawful use of violence or threat of violence to instill fear and coerce governments or societies. Terrorism is often motivated by religious, political or other ideological beliefs and committed in the pursuit of goals that are usually political" (DoD, JP3-07.2, 2010).

The intention of this paper is not to deal with definitional problems, but to point out that terrorism as a phenomenon of "violent political crime or illicit mode of waging conflict under control" (Schmid, 2005:376) has a powerful effect on the public opinion creating a state of fear and anxiety, thus making any kind of counterterrorist measures and actions (in internal or international affairs) very favorable. Knowing that, terrorism could be used in two different ways as a means of hybrid warfare. Considering definitions of hybrid warfare and changes in war aims and means, it is very opportune that one state makes advantage and denounces another state or organization as a "safe house" for a terrorist or terrorist organization, thus giving a reason for conducting an intervention against such a state or organization. The other way involves using military units and surrogates for the purpose of committing acts of violence in order to destabilize targeted states (UW), giving support to cooperative and friendly governments (FID) or achieving other aims.

STATES WHICH ARE DESIGNATED AS STATE SPONSORS OF TERRORISM

"Countries determined by the Secretary of State to have repeatedly *provided support for acts of international terrorism* are designated pursuant to three laws: section 6(j) of the Export Administration Act, section 40 of the Arms Export Control Act, and section 620A of the Foreign Assistance Act. Taken together, the four main categories of sanctions resulting from designation under these authorities include restrictions on U.S. foreign assistance; a ban on defense exports and sales; certain controls over exports of dual use items; and miscellaneous financial and other restrictions. Designation under the above-referenced authorities also implicates other sanctions laws that penalize persons and countries engaging in certain trade with state sponsors. Currently there are four countries designated under these authorities: the Democratic People's Republic of Korea (North Korea), Iran, Sudan, and Syria" (U.S. Department of State, 2018).

The designation of a single state as a sponsor of terrorism is aimed to link a designated state with terrorism as its means of national policy giving to the international community (especially to the United States) reasons for imposing sanction against such state. Sanctions should have an effect on the defense and economic potential of the state and thus facilitate changing of internal and/or foreign policy, facilitate regime changes or creating a cause for so-called "humanitarian intervention". The list of states that are designated as sponsors of terrorism is variable and it depends on current US politics toward a particular state or region. For example, Iraq's designation as a state sponsor of terrorism was formally rescinded in October 2004, after the US took military control over the country.

"U.S. law requires the Secretary of State to provide Congress, by April 30 of each year, a full and complete report on terrorism with regard to those countries and groups meeting criteria set forth in the legislation. This annual report is entitled *Country Reports on Terrorism*" (U.S. Department of State, 2018). Beginning with the Patterns of Global Terrorism from 2000 to 2003 and *Country Reports on Terrorism* for 2004, Cuba, North Korea, Libya, Iran, Sudan and Syria are mentioned in almost every report. What is behind this designation is hard to say exactly, however these designations always go along with US political or economic interests, and we will mention here only a few facts as an illustration.

If one state's political interests collide with the US political or economic interests in a particular part of the world, than such a state could be designated as a *state sponsor of terrorism* and thereby as the *enemy of humankind*. This recalls the story of a pirate who was captured by Alexander the Great who asked him how he dared "molest the sea." "How dare you molest the whole world?" the pirate replied: "Because I do it with a little ship only, I am called a thief; you, doing it with a great navy, are called an Emperor" (Chomsky, 2000). Designation of this kind gives several advantages. Firstly, a political opponent is labeled as an adversary to the entire world, and not just to the interests of the United States. In such a situation, war against such a state is not considered as means of national policy but as a means of humanitarian assistance to the people who live under torture, oppression and dictatorship. Secondly, such allegations and global fear of one state justify a significant military budget and budget for special operations in such a way that the US maintains a dominant position in the modern world.

Syria and Iran are considered to be US enemies because their interests in Palestine collide with the US interests, especially regarding the existence of Israel. Furthermore, Russia has strong presence in Syria and that is an additional reason for such a designation. Syria and Iran use Hezbollah, which is designated as a terrorist organization, against Israel. However, interest for international peace and security, human rights and other universal values are not

the first aim of this designation, whether we talk about Syria, Iran or Hezbollah. If it were, then Israel, Pakistan, Saudi Arabia and other US allies which use state terror or terrorist organizations, should also be designated as states sponsors of terrorism. Designating one state as a sponsor of terrorism in this situation serves as a way of drawing attention of the international community to American adversaries by showing that the state as immoral or unjust.

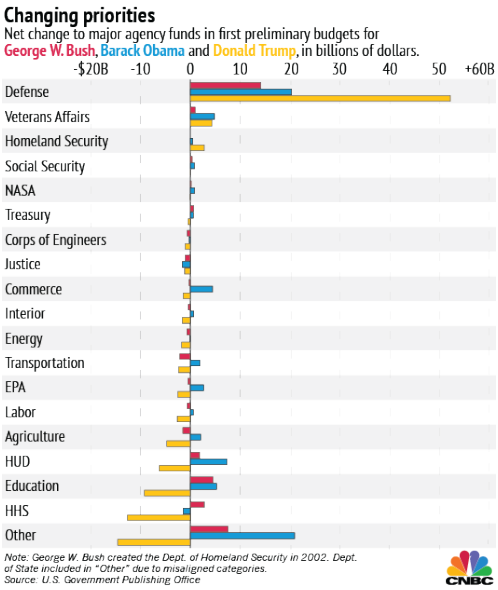
Libya and Iraq are states which have tremendous oil reserves and which have to be under strong political or/and military control because any disruption of supplying Western markets could produce severe consequences to political, economic and military power. This is especially important considering the US strategic commitments related to energy security: "The United States depends on oil for more than 40 percent of its primary energy needs. Roughly half of our oil needs are met with imports, and a large, though diminishing, share of these imports come from the Persian Gulf area… Over the longer term, US dependence on access to these foreign oil sources will be increasingly important as our resources are depleted"(National Security Strategy (NSS), 1997:32).

Current situation in Ukraine has to be seen through the lens of *the doctrine of restraint* which implies pressure along the entire Russian border, making Russia set a defensive foreign and military strategy. The doctrine-of-restraint application did not stop after the Cold War, on the contrary, its application continued after the Cold War through spreading Alliance (NATO) towards the Russian border. Strong Russian presence in Ukraine did not allow easy absorption of Ukraine in Western political and military organizations and because of that legitimate efforts of the Russians who live in Ukraine to stay with Russia was denounced as terrorist campaign against pro-Western government.

North Korea designation could be important for US foreign and security policy, for two reasons. Firstly, the threat of North Korea gives rise to fear among US allies in this part of the world, Japan and South Korea, forcing them to create stronger relations with the United States. Secondly, making North Korea an "enemy of humankind" gives solid ground for Congress to approve a higher US military budget in order to maintain US domination across the world. After several years out of this list, North Korea was designated again as a state sponsor of terrorism in 2017. That designation has a strong connection with the proposal of budget, because fear from North Korea was raised at the same moment when the new administration was preparing a budget proposal in which they planned to take "funding from most federal agencies to bolster the Department of Defense, Veterans Affairs and Homeland Security" (Fahey & Wells, 2017).This is not the first time that such measures have been taken. Both previous presidents at the beginning of their election period increased the budget for military and other agencies which participate in the global projection of US power. One or two years later, severe global security issues emerged and at the end with such bolstered offensive oriented budget the United States was striving to take a leading role in resolving the crisis.

President Bush was elected in 2000, soon after *war on terror* happened in 2001 with intervention in Iraq 2003 as its extension. Barack Obama was elected in 2008 and again in 2012. Arab Spring followed Obama's bolstering Department of Defense and Department of State with additional funds. The most violent consequence of Arab Spring was and still is the Syrian civil war which broke out as a result of Russian interference in this conflict with the aim to prevent achievement of US goals which are embodied in regime change, political control over the country and suppression of Russian influence in the Mediterranean. A serious campaign against North Korea started when Trump was elected and as a result of that, a substantial augmentation of the military budget occurred (see Hartung, 2018) and North Korea was designated as a sponsor of terrorism even though North Korea was not accused of terrorism in the public discourse but rather of developing a nuclear program. It can be seen

in the graph below how different administrations had changed priorities over the financing major agency just before great security issues emerged.



Graphic 1. *Changing priorities in financing major agencies i n the United States(Fahey & Wells, 2017).*

TERRORISM AS A MEANS OF COVERT WARFARE

Along with the criminalization of open conventional war as an instrument of security policy after the Second World War and its reduction to self-defense, other forms of war are being developed in order to circumvent the norms of international law. New types of warfare are "new by intensity, and old by origin - by guerrilla warfare, subversion, rebellion, murder, war by occupation, not open struggle, infiltration instead of aggression, victory through weakening and exhausting of the enemy, and not open conflict with it" (FM 31-20, 2001 & FM 3-05-20, 2004: 1-1) Unconventional warfare (UW) and irregular warfare (IW) as new types of warfare in military doctrines are merged with conventional warfare into, what is known today as *hybrid warfare*. The criminalization of the war did not affect its necessity as an instrument of achieving political goals, but has led to the conception of new doctrines of warfare that erase the border between war and peace. In this sense, today we have a state of permanent conflict which is visible only when the means of covert warfare do not produce a result, and then a conventional warfare follows. Thus, conventional warfare does not represent a new conflict, but only a period of escalation of visible violence which follows after a period of covert warfare.

For example, if, in strategic documents of one state, political and/or military control over areas which have great natural resources, is defined as a vital economic, security, and therefore, political goal, the activity of the entire state apparatus will be directed towards exercising control over that area. All necessary help is provided (including military, economic and political assistance) to a cooperative and friendly state in order to prevent political upheaval which can jeopardize political interest and position of the intervening state. In the U.S. doctrines

such measures are called Foreign Internal Defense (FID) and they include participation by civilian and military agencies of a government in any of the action programs taken by another government or other designated organization to free and protect its society from subversion, lawlessness, and insurgency (JP 1-02, 2010:92). FID is conducted "in the absence of any other military effort, to support other ongoing military or civilian assistance efforts or support the employment of conventional forces. The key differentiating factor between FID and other operations is the involvement, engagement and support of the HN government" (FM 3-05.137, 2008: 1-1). FID includes activities which may be regarded as terrorism, because certain activities from vast range of FID activities consider violent acts with political purpose in order to prevent undesired group to take over power in the targeted state. There are numerous examples of the terrorist character of FID in Europe during the Cold War, in South America, Turkey etc.

If one state does not have a cooperative and friendly government, UW is considered in order to take down such a government. First, the attacking state uses methods of covert warfare to create a situation which give rise to belief that terror against an innocent population is committed by either a cruel dictator or some terrorist group or organization in the targeted state. Perception of inability or unwillingness of the government in such a state to protect its own population, makes great powers believe that military intervention in order to protect innocent civilians is, if not a legal, than a moral duty. Terrorism in this context is used to "prepare the ground" for an open military intervention, in case a political upheaval by indigenous groups goes wrong or as an ultimate means of its support. The best examples of this are attacks which the US, the UK and France launched against Syria, after the failure of terrorist groups to create a situation which would facilitate political upheaval in Syria. Regardless of the cause of military intervention, it is an introduction to the military and/or political control of a region or state. By analyzing the countries in which force was applied (in any form), it could be noticed that there is a very striking coincidence between the fact that humanitarian reasons led to control and presence in those areas which were previously identified as priority areas of economic and security policy of state which intervene (for example the US control over the countries in the Middle East, the Caucasus, the Balkans, etc.). Thus, the war is presented as a gesture of goodwill, and occupation as a favor to the inhabitants.

Considering previously mentioned definition of UW and IW, terrorism could appear as one of the means which some states use to solve internal problems or in a mutual struggle on a global scale, without the danger of being called to account for such acts. "UW is a broad spectrum of military and paramilitary operations, predominantly conducted through, with, or by indigenous or surrogate forces organized, trained, equipped, supported, and directed in varying degrees by an external source. UW includes, but is not limited to, guerrilla warfare, subversion, sabotage, intelligence activities, and unconventional assisted recovery (UAR). When conducted independently, the primary focus of UW is on political-military and psychological objectives. UW includes the military and paramilitary aspects of resistance movements. UW military activity represents the culmination of a successful effort to organize and mobilize the civil populace against a hostile government or an occupying power. From the US perspective, the intent is to develop and sustain these supported resistance organizations and to synchronize their activities to further US national security objectives" (FM 31-20, 2001 & Ch. 1. FM 3-05-20, 2004:2-1) Although, US doctrines consider content of UW as legitimate means of achieving political and other interests, key elements of terrorism are visible here – acts of violence directed against the legal and legitimate government which are committed by a group or organization in order to achieve its political goal. Particularly incriminatory in this case is statement that intention of the US related to activities of such groups is *to synchronize their activities to further US national security objectives.*

Furthermore, "UW is a component and method of prosecuting IW, but UW and IW are each distinct. Both IW and UW focus on influencing relevant populations. However, whereas IW does not necessarily require operations with irregular forces, UW is always conducted by, with, or through irregular forces. UW may be a central effort in a holistic IW campaign in which conventional military operations are not used, or it may be conducted as an IW element in support of what is predominantly a conventional military operation." (FM 3-05.130, 2008:1-7)This statement could be interpreted as implicit recognition that terrorism is used for achieving US security, economic and political interests. This assertion would be tested from the perspective of energy security as one of the most important aspects of general US political interests in the world.

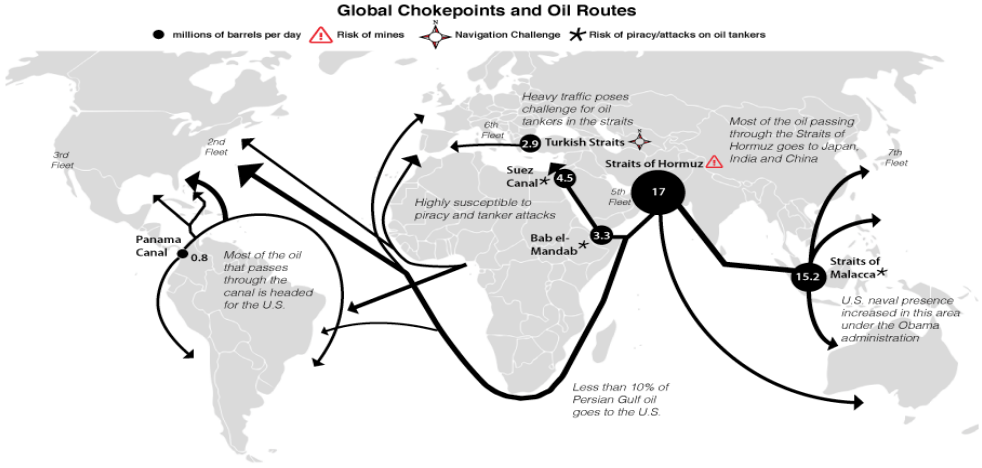
Energy security has been pointed out as one of the most important values related to national security in every US Security Strategy. The US administration regards global security of the whole world and national security of the US almost as equal in content, so activities on realization of national security have to be taken on the global scale. Energy security is defined as "the need for regional stability and security in key producing areas to ensure access to and the free flow of these resources" (NSS, 1997:32).Thus *stability* and *security* assume military and/or political presence in such areas in order to control oil and other fossil fuel production and flow to the states with the greatest consumption. Such control secures dominant economic position for the US because in this way the US affects national economies through dictation of fuels availability and prices. Considering these facts, tremendous importance lies in controlling main areas, corridors and chokepoints not just for oil but also other natural resources transportation from the states where those resources are being exploited to the states which have the greatest share in production and consumption. State or alliance which could obtain dominant influence on such process would also obtain a dominant position in the global economy and thus politics. Deployment of instruments of national power across the world implies strong reasons for such an activity, so one state can use organizations or groups which are designated as terrorist organization in order to make a state or region unstable, fragile or dangerous and in such fashion create reasons for military presence or intervention.

The table below presents information about production, consumption and reserves of oil in order to illustrate interdependence and connections between the states which have great importance in the production and consumption of fossil fuels (The US Energy Information Administration (EIA), 2018). In this table, the red fields represent the US and its allies and partners, blue fields stand for US adversaries, yellow fields are states where terrorism occurs on a massive scale and the green ones are potential adversaries or opponents. The US achieves its political and military presence in its allied and partner states through participation of those states in military and political organizations and agreements. The US is trying, by using sanctions against Russia, China, Iran and Venezuela, to destabilize these states and make them change domestic and foreign politics. Massive atrocity and terrorism in Iraq, Libya and Nigeria allow foreign interference in internal affairs and especially in business with oil and natural resources. The means of hybrid warfare may differ (sanctions, pressure, terrorism) depending on the situation, but their purpose is always the same – economic and political dominance.

States which have the most proved reserves of crude oil, rates of production and consumption of petroleum										
Production (2017)	US	Saudi Arabia	Russia	Canada	Iran	Iraq	UAE	Brazil	Kuwait	Mexico

Consumption (2015)	US	China	India	Japan	Russia	Saudi Arabia	Brazil	S. Korea	Canada	Germany
Reserves (2017)	Venezuela	Saudi Arabia	Canada	Iran	Iraq	Kuwait	UAE	Russia	Libya	Nigeria

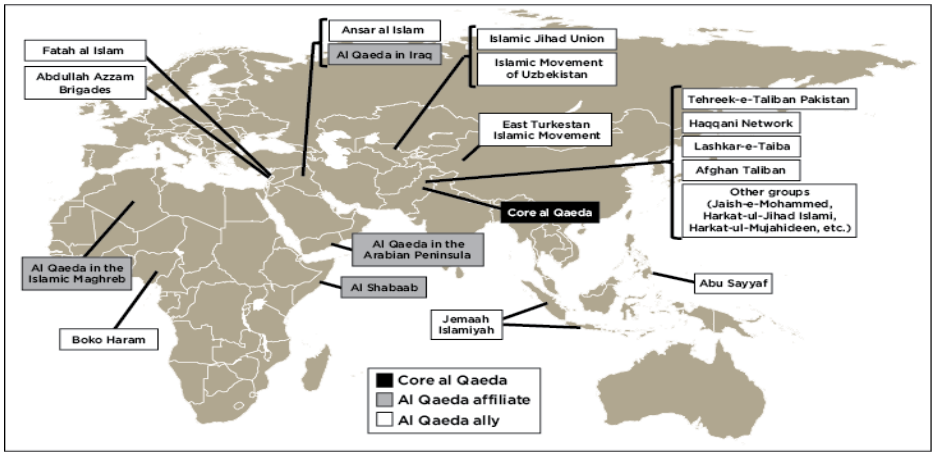
In the pictures below we can see that the most notorious terrorist organizations are present in or close to other areas which are on the main routes and chokepoints. One may argue that the presence and activities of such groups in such places are primarily inspired by the desire to extort concessions from great powers in order to achieve their political goals. However, if we closely analyze State Department's list of designated terrorist organization (Department of State, 2018) we can notice, for example, that several Kurdish parties are designated as terrorist organization because Kurds threaten to destabilize the integrity of Turkey, which is one of the most important US allies and a state with tremendous importance for secure oil and other fossil fuels fluctuation from the Caspian Basin. Yet the Kurds are fighting for an independent state for more than 20 million Kurds and not to disrupt the free flow of resources. Designation of Kurdish parties as terrorist organizations gives all the necessary tools to Turkey in order to suppress Kurds without being afraid that such actions may lead to accusations of violating human rights. This is an example of FID.



Picture 2 – *The global chokepoints and oil routes (Plumer, 2013)*

On the other hand, terrorist organizations such as ISIL, Abu Sayyaf, Al-Shabaabor Jemaah Islamiyah make certain regions and points fragile and unstable and thus convenient for intervention or other kind of interference (Maghreb, Suez Canal, Philippines, South China Sea, Bab el-Mandab, Straits of Malacca etc.).The connection between these organizations is established more in the public discourse of the West than it is the case in practice. Great contribution to such conclusions is given by organizations which do not have enough power and influence, but which pledge obedience to prominent terrorist organizations in order to multiply their power using fear from terrorist organizations such as al-Qaeda or ISIL. With or without a true connection between all these organizations, they are all together considered

as some kind of a "net of terrorist organizations" which presents a unique threat to global security thus giving a fierce reason for the usage of open force by states that have interests in a particular area or state in order to control it. That net is spread around the world and particularly in areas which have political, economic, strategic or any other relevance.



Picture 3 – *Al Qaeda, affiliate and allies global presence (Beauchamp, 2015)*

It might be wrong or too bold to conclude that all terrorist groups are merely perpetrators of the scaled and controlled violence. On the other hand, it would be an absolutely wrong assertion that terrorism is only what is perceived as terrorism in the public discourse – politically motivated acts of violence which are conducted by idealistic organizations, without mentioning the true nature of interest of such organizations and states that stand behind their acts. However, the truth is that all major powers deploy armed groups or organizations to exercise their national interests separately from conventional warfare and at the same time denounce such activities of an adversary as terrorism. That is the reason why it is hard to obtain a consensus in the definition of terrorism and also why terrorism will continue to occur even though great efforts are invested in counterterrorism.

CONCLUSION

We live in a world where just uttering of the word "terrorism" in public discourse gives a rise to fear and a psychosis which leads people to absence of critical thinking and – in consequence - acceptance of imposed attitudes, beliefs and measures which are taken by governments. Therefore, terrorist campaigns achieve their goals but the ultimate beneficiary of such a situation is someone else, not the group that is portrayed as a terrorist. That "other" party is a state which, in the name of higher goals and national security, is legitimized by itself to openly conduct counterterrorist measures, with the approval or tacit consent of other states. Humanitarian interventions, just wars, subversive activities, unconventional warfare, special operations, and so on, are just some of the names for excuses under which thousands of people are being killed, property destroyed and permanent harmful effects on people and the environment spread.

Terrorism in its totality, as a means of politics, is only partially visible. Perhaps it is better to say that only the consequences of terrorism are visible. The affected country usually re-

sponds to these consequences by criminal law, which can only give limited results. Criminal law as a means of maintaining order within a state cannot be effectively applied against the forms of endangerment that have an international background. Criminal law solutions cannot suppress the war, whether open or concealed, in which terrorism may play an important role. Terrorism is not a matter of organizations or groups that ultimately exercise it, but the states that use such means to achieve political goals.

This paper suggests that such a statement is true and that great powers use terrorism as a means to create situations which would justify an open intervention and military and/or political control through installing a cooperative government in the targeted state. This scenario is very likely if we consider the foreign and security policy of the United States which is based on global dominance but depicted as a *humanitarian assistance* and *promotion of human rights* across the world. It appears that assistance and promotion of human rights always happen in the states, areas or corridors which have tremendous importance for world trade, economy and thus political domination. In this way, great powers which have the paramount responsibility in the protection of international law and order use covert means (among others terrorism, as well) to achieve political goals at the expense of that law, justifying such measures by humanitarian aid.

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POLITICAL SECURITY IN BOSNIA AND HERZEGOVINA TWENTY YEARS AFTER THE DAYTON PEACE AGREEMENT

Dražan Bojić, MA[1]

Abstract: The civil war (1992-1995), ended by means of the General Framework Peace Agreement (the Dayton Peace Agreement) with a view to establishing permanent peace and stability, rendered the country in a post-conflict situation. However, this seems to be the only palpable result of this Agreement, since, twenty years after its signing, the political context in the country is still without any consensus, burdened with various antagonisms.

This paper is based upon certain theoretical hypotheses that are associated with contemporary security theory, that is, international relations theories, with the political security in Bosnia and Herzegovina in its focus. The author analyzes and identifies possible threats and referent objects of political security in the period described. In addition, the dangers recognized – challenges, risks, and threats, coming from the inside, are checked in terms of social constructions and securitization within the state, after which the character of the existing political threat to the security in the country is assessed and identified.

Keywords: Bosnia and Herzegovina, political security, security challenges, risks, and threats, social constructivism, securitization.

THEORETICAL APPROACH

In contemporary security theories, that is, international relations theories, there is a political security theory dealing with definitions of security sector. Decision-makers, when urged to highlight a certain issue as an existential one by putting it high on their agenda, insist on its significance in terms of national, regional, or global security. (Ejdus, 2012:25-26). The essence of security is reflected in its basic notions, such as *threat* (that what causes danger), *referent object of security* (that what is endangered), *subject of security* (that what protects), and *means*, that is, security measures (manner of protection). (Bojić, 2016: 183). As for political security, what is implied under this notion is the organizational stability within a state, that is, the organization of social order. (Barry, Waver, de Wilde, 1998:141).

Throughout history, the state has represented the dominant form of political organization, with political security today mainly referring to the organizational stability of a state. Given the fact that sovereignty, that is, monopoly over the legitimate application of repressive force represents the way the state maintains its stability, the former becomes the main referent

1 Head of Unit for Operational Analytics at the Ministry of Interior of the Republic of Srpska, Bosnia and Herzegovina. A PhD student at the Faculty of Political Sciences, Department of International and European Studies, University of Belgrade (Serbia), with the PhD thesis entitled 'Weak state and trafficking in Bosnia and Herzegovina.draskobojic@yahoo.com; drazan.bojic@mup.vladars.net.

object within the sector of political security. Apart from organizational stability, there are other referent objects of political security mentioned in the theory, such as certain forms of interaction, reflected in violations of equality, territorial integrity, or human rights. (Ejdus, 2017:132-133).

Furthermore, the paper deals with the closely related theories of social constructivism and securitization. The focal point of the former is that social reality is not something materially given but socially construed, which means that, from the perspective of security studies, the same is valid for international (in)security (Endues, 2017:85). As a result, the common assumption of constructivist approaches to security is that security is a social construction or, as Karin Fierke puts it more openly, "*construing something represents an act of creating a subject or object that otherwise would not have existed in the first place*". (McDonald, 2008: 109). On the other hand, the latter is defined as follows:

Securitization is the process of construing the perception of challenges, risks, and threats. It is a speech act by which a certain political issue is formulated as a significant one in terms of the survival of the community and thus transferred outside the context regulated by determined rules of behaviour. If such a speech act (securitizing attempt) results in adopting 'special measures', which otherwise would not have considered adequate in a democratic society, we witness the process of successful securitization. The acteurs conducting the process of securitization are referred to as securitizing acteurs. In order for securitization to be successful, the speech act must abide by the rules of security 'grammar' (for instance, existential threat, survival, point of no return, special measures etc), with a securitizing acteur being an entity of huge political and symbolic capital. (Stanarević, Ejdus:2009:120). Within the process of securitization, there appears the element of *audience* as a mandatory one, which provides or denies consent for special measures proposed by the securitizing acteur (it can be general public, a narrow circle of persons employed with an institution...) (Ejdus,2017:90). Therefore, the process of securitization consists of a *speech act*, that is, a *securitizing move*, *securitizing acteurs* (those who use a speech act – heads of state, prime ministers, heads of security services, military headquarters etc), *special measures* (use of military force, sanctions....), and *audience*. With regard to political security, securitizing acteurs are, in the first place, states, their political elites and opposition political Entities. (Ejdus,2017:133).

In terms of their source, threats to political security can be both *internal* and *external.* The former are generated by a non-state acteur, which directs them primarily towards the inner legitimacy of the state, either on a part of its territory or on the whole of it. The latter are generated in a situation when a state is denied of recognition by another state or by non-state acteurs operating outside its territory. In addition, there are *intentional* and *structural* threats. When intentional threats are concerned, it is a case of a political actor threatening another acteur in a conscious and premeditated manner. Among these, the most common ones are those based upon the split of a state or nation, although they can also be founded on an ideology or directed against the principles of international order. On the other hand, *structural* threats are more the result of a given situation than they are an expression of special intentions towards another acteur. The first type of a structural threat is reflected in the notion of Zeitgeist, where conservative and isolationist regimes deem globalization and liberal ideas as a threat to their existence. The second one comes out from different ideological principles upon which states are built, which can be shown on the example of Cold War, with the confronting ideologies of communism and liberalism, whereas the third one is reflected in the process of regional integrations, where such integrations are viewed either as a threat or a referent object of security. (Ejdus, 2017:136-140).

It is necessary to point out that the processes of securitization and social constructivism are viewed from the perspective of international relations, that is, the relations and types

of discourse between states as units of that system. However, the peculiarity of this paper is that these theories are applied and checked taking into account relations within a single state, through an analysis of relations and types of political discourse between the existing socio-political Entities forming the state of Bosnia and Herzegovina.

POLITICAL SYSTEMS IN BOSNIA AND HERZEGOVINA

There was a civil war raging in Bosnia and Herzegovina in the 1992-1995 period between three confronting ethnic communities of Moslems, Croats, and Serbs respectively, preceded by severe ethnic and religious antagonisms. During that period, there were several peace-making processes taking place under the auspices of the international community, with a view to ending hostilities and establishing permanent peace, but they all failed.[2] However, this was achieved in November 1995, when *The General Framework Peace Agreement for Bosnia and Herzegovina*, colloquially *The Dayton Agreement* was signed with international and regional mediation, which was sealed in Paris (France) on 14 December 1995. According to this Agreement, Bosnia and Herzegovina consists of the socio-political Entities of the Republic of Srpska (49%) and the Federation of Bosnia and Herzegovina (51%) respectively, with the Brcko District as an administrative unit of local authority within the sovereignty of Bosnia and Herzegovina. The Republic of Srpska is dominated by the Serb population, whereas the Federation of Bosnia and Herzegovina is dominated by the Moslem/Bosniac and Croat ethnic groups.

According to the 2013 census, there is the total of 1,228,423 citizens living in the Republic of Srpska, of whom 171,839 Bosniacs, 29,645 Croats, 1,001,299 Serbs, 8,189 non-declared citizens, 15,324 others, and 2,127 citizens of unknown ethnic designation. As for the Federation of Bosnia and Herzegovina, there is the total of 2,219,220 citizens, of whom 1,562,372 Bosniacs, 497,883 Croats, 56,550 Serbs, 18,344 non-declared citizens, 79,838 others, and 4,233 of unknown ethnic designation. Finally, the records for the Brcko District show that there are 83,516 citizens in total, of whom 35,381 Bosniacs, 17,252 Croats, 28,884 Serbs, 522 non-declared citizens, 1,377 others, and 100 citizens of unknown ethnic designation.[3] Given these data, it is evident that Bosnia and Herzegovina is a decentralized political system. At the time The Dayton Agreement was signed, the Entities had already established their respective administrative systems, with the state-level mechanisms foreseen by the Agreement and the Constitution of Bosnia and Herzegovina yet to be established. Taking into account the period researched, the Republic of Ruska has its president, legislative, executive, and judicial authorities within precisely determined limits of its autonomy and competences, being the only centralized territory within the whole of Bosnia and Herzegovina. On the other hand, the Federation of Bosnia and Herzegovina is a highly decentralized system, with 10 cantons and the entity-level authorities, and the president as well. When the state of Bosnia and Herzegovina is concerned (so-called common bodies), there was gradual establishment of all three authority branches with limited competences, along with the institute of Presidency of Bosnia and Herzegovina consisting of three members, one Bosniac and one Croat elected in the territory of the Federation of Bosnia and Herzegovina and their Serb counterpart from the Republic of Srpska, taking presiding roles in turn.[4] It is necessary to mention that the complete political

2There were six peace-making processes in total: The Cutillero Plan, The Vens-Owen Plan, The Owen – Stontelberg Plan, The Washington Agreement, The Contact Group Plan, The Geneva-New York Plan

3 The Statistics Agency of Bosnia and Herzegovina, *the 2013 Census,* Sarajevo. Access through: http://www.popis.gov.ba/popis2013/knjige.php?id=0 (Accessed on 24 May 2018).

4 The Constitution of Bosnia and Herzegovina, *Official Gazette of Bosnia and Herzegovina*, issue 25, Sarajevo, 2009, p.8. Access through: http://www.ads.gov.ba/v2/index.php?option=com_content&view

systems at the state-level is manned by the candidates coming from respective Entities, which implies that it represents the continuation of policies made at the entity level.

However, twenty years after the signing of the Agreement, there is a political system on stage that can be characterized in terms of international relations as weak state. The Agreement did terminate the hostilities, but it failed in establishing a functional state with unique national goals. This could be attributed to ethnic and religious antagonisms and intolerance between political subjects from the Entities. Whenever there is an attempt to introduce certain policies or strategies exerting the effect on the whole of Bosnia and Herzegovina, there is an obstacle as a rule, manifesting itself in the form of denial by one part of legislative authorities representing one or both Entities.[5] One of the reasons for such behavior is the fear of losing entity-level competences and, consequently, of the identity, endangering basic religious, ethnic and other interests.

On the contrary, political factions commonly proposing strategies and policies aimed at building strong centralized institutions are thought to be doing this with a primary view to reducing the competences and functionality of the already existing entity-level institutions. In other words, the current political discourse in Bosnia and Herzegovina tells us that there are three autochthonous, divided political concepts contributing to the process of weakening the state-level institutions. There is a concept advocating the centralization of the whole country, by which the current entity structure would be abolished, re-establishing the pre-war political systems, but this raises fears of possible majoritarianism of one or two constitutional peoples and other peoples in Bosnia and Herzegovina. In addition, the second concept advocates the status quo founded upon the Agreement, guaranteeing the acquired rights exercised at the entity level. Finally, the third concept insists on a new possibility, that of establishing the third 'federal' unit, that is, entity. Such a negative political discourse makes it impossible for the renewal and establishment of functional institutions in Bosnia and Herzegovina and, consequently, for further process or Euro-integrations and international status of the country.[6]

POLITICAL DISCOURSES IN BOSNIA AND HERZEGOVINA

The previously described state of affairs in Bosnia and Herzegovina is explained today in terms of negative political discourse domineering the relations between political officials of the respective Entities in the country, which can ultimately bring about the weakening of the already existing state-level structure. For the purpose of this paper, we will analyze only one

=article&id=1951%3Austav-bosne-i-hercegovine&catid=50%3Aosnove-ustavnog-sistema-bosne-i-hercegovine&Itemid=173&lang=sr (Accessed on 24 May 2018).

5 An example: On 15 July 2015, a decision on organizing a referendum regarding the imposed decisions of the High Representative, especially concerning the Court and Prosecutor's Office of Bosnia and Herzegovina, was made at the National Assembly of the Republic of Srpska. It was decided that the referendum was to be held on 15 November 2015, with the following question on the ballot: *Do you support the unconstitutional and illegal imposition of laws by the Office of High Representative, especially the laws concerning the Court and Prosecutor's Office of Bosnia and Herzegovina and their implementation in the territory of the Republic of Srpska?* The Decision of the Constitutional Court on the referendum was published in The Official Gazette of the Republic of Srpska, issue 78/15, page 11. Following this decision, the Bosniac club at the Peoples' Council of the National Assembly of the Republic of Srpska vetoed the decision of the National Assembly on constituting the Commission for Implementation of Referendum.

6 Dražan Bojić, *Weak state and trafficking in Bosnia and Herzegovina*, Draft version of PhD thesis, Faculty of Political Sciences, University of Belgrade, 2017, pp7-8. This portion of text is taken from the contents of the draft version of author's PhD thesis, which was approved by the decision no:61206-3381/2-17 of 10 October 2017

of the topical discourses making the headlines of local media, with a view to presenting the relevant facts and testing the theory described.

ARMING THE POLICE OF THE REPUBLIC OF SRPSKA – COUNTER-TERRORISM ACT OR CONQUERING BOSNIA AND HERZEGOVINA

In the beginning of 2018, the Ministry of Interior of the Republic of Srpska, with the consent of the Government of the Republic of Srpska, made a decision of purchasing 2,500 new rifles for the police of the Republic of Srpska, since they currently have outdated models at their disposal. Moreover, the Republic of Srpska suffered an act of terrorism a couple of years ago, which resulted in the death of one officer and wounding of two in the attack on the police station in the town of Zvornik, the attacker himself having been killed during the act. All this added up to the aforementioned decision..[7]Explaining it, the Minister of Interior said that the police had not taken any activities regarding purchasing such equipment in previous years, insisting that such a step be necessary in order for this institution to confront contemporary security threats.[8] The President of the Republic of Srpska, for his part, said on several occasions that this purchase of arms was going to take place, since the Republic of Srpska had been banned from such activities for twenty years, which indirectly led to the already described terrorist attack...[9]Furthermore, the President maintains that this purchase is fully legal and legitimate, emphasizing the fact that the police are given a constitutional right to training for the job they are given, insisting that all the necessary permits form competent bodies at all authority levels have been obtained.[10] Therefore, this is a situation where caters from the Republic of Srpska publicly express political intentions and take steps in a legal and argument manner. However, this issue has caused political confrontation between the Entities and fierce reactions from both the Federation of Bosnia and Herzegovina and international community. While this a matter of modernizing security structures for the purpose of countering terrorism threats for the Republic of Srpska, for the Federation of Bosnia and Herzegovina it is a danger invoking new conflicts and conquering new territories in Bosnia and Herzegovina.

The Minister of Interior of the Federation of Bosnia and Herzegovina expressed his concerns over this matter, highlighting the fact that the amount of rifles far more outnumbered the police force, adding that the police structures of the Federation of Bosnia and Herzegovina never considered a similar purchase of this volume. The Bosniac member of the Presidency of Bosnia and Herzegovina supported the Minister on this occasion, repeating the thesis of exaggeration in this respect, saying that these rifles are normally used by military forces, which alerts all benevolent citizens of the country. This political acteur had already warned of the process of militarization of the police of the Republic of Srpska, as well as of forming paramilitary units in this entity. He concluded that, unless the political leader of the Republic

7 More details on the attack on the police station on: https://www.nezavisne.com/novosti/hronika/Teroristicki-napad-na-policijsku-stanicu-u-Zvorniku-ubijen-napadac-iz-minuta-u-minut/302308 (Accessed on 24 May 2018)
8 More details on the statement of the Minister of Interior of the Republic of Srpska on: http://www.atvbl.com/ove-puske-ce-dobiti-policajci-u-rs/ (Accessed on 24 May 2018)
9 More on the statement of the President of the Republic of Srpska: http://www.6yka.com/novost/135732/reakcije-na-nabavku-oruzja-mup-a-rs-previse-tek-pocetak (Accessed on 24 May 2018)
10More details on: https://rs-lat.sputniknews.com/analize/201802131114542105-republika-srpska-nabavka-oruzja-/ (Accessed on 24 May 2018).

of Srpska was not stopped, it was going to present a problem not only for Bosnia and Herzegovina, but for the whole region and the EU itself.[11]

Following these public announcements, the Director of the Police Directorate of the Federation of Bosnia and Herzegovina expressed his negative attitude regarding the issue, and made a public call to the international community and the Office of High Representative for Bosnia and Herzegovina[12] to react with regard to this gesture by the acteurs from the Republic of Srpska in order to preserve peace in Bosnia and Herzegovina, since he deemed this move as an attempt to violate the Agreement.[13]

Inspired by the reactions of political acteurs from the Federation of Bosnia and Herzegovina, the British daily newspaper *Guardian* published an article entitled 'Growing fears over new conflicts in the region', alluding to possible separatism of the Republic of Srpska and starting new conflicts.[14]

All this resulted in procrastinating the process of purchasing rifles for the police of the Republic of Srpska and expressing concern on the part of European NATO officials in March 2018 over the worsened security situation in Bosnia and Herzegovina, highlighting the armament of the police of the Republic of Srpska, demanding that all police structures in Bosnia and Herzegovina deliver detailed lists of the arms in their possession for further checks.[15]

Therefore, this type of discourse is going to be used in order to test the hypothesis whether the process of securitization, that is, social constructivism, is taking place on the political scene of Bosnia and Herzegovina. Although there is a remark from the beginning of this text that these theories are normally viewed from the perspective of inter-state relations, in this particular case it is a matter of relations of two autonomous Entities within the same state. Furthermore, social constructivism is said to represent a social construction, which in this case can be identified with a speech act representing, at the same time, the process of securitization. It means that, if the existence of the latter notion is confirmed, we can accept the fact that there is the process of social constructivism at work here. Following is the verification through the list of elements of securitization, assuming that there is an attempt of securitization of the political body of the Republic of Srpska on the part of political acteurs of the Federation of Bosnia and Herzegovina.

Speech act: It is an acceptable assumption that there is a speech act publicly made by political acteurs of the Federation of Bosnia and Herzegovina, reflected in public addresses maintaining the idea of excessive arming process of the police of the Republic of Srpska, re-

11 More details on: https://www.jutarnji.hr/globus/Globus-politika/ekskluzivno-bakir-izetbegovic-u-velikom-intervjuu-za-globus-rat-priziva-dodik-a-hrvatima-je-bolje-da-zbog-sebe-samih-ne-spominju-treci-entitet/7083837/(Accessed on 25 May 2018)

12 The High Representative for Bosnia and Herzegovina is an international representative of UN supervising and coordinating the implementation of civil aspects of the Dayton Peace Agreement. In 1997, at the meeting in Bonn (Germany), he was approved to exercise the so-called Bonn authorizations, allowing him to introduce amendments to the Constitutions of the Republic of Srpska and Federation of Bosnia and Herzegovina respectively, pass laws and subsequent amendments, remove from the office officials and public servants and ban them from participating in elections, deny them civil rights and deprive them of identification documents without the right to appeal. More details: http://www.ohr.int/?lang=en (Accessed on 15 May 2018).

13More on the statement of the Director of the Police Directorate of the Federation of Bosnia and Herzegovina: http://ba.n1info.com/a243224/Vijesti/Vijesti/Lukac-o-naoruzavanju-u-RS.html (Accessed on 23 May 2018)

14 More on the contents of *The Guardian*: https://faktor.ba/vijest/britanski-guardian-o-naoruavanju-policije-rs-a-raste-strah-od-novih-sukoba-u-regionu-283822 (Accessed on 24 May)

15 More on the statement of Colonel Nicholas Chalons, Military Assistant to the Deputy Chief Commander of NATO Forces in Europe: https://www.bl-portal.com/vijesti/rs-i-fBosnia and Herzegovina/nato-zatrazili-smo-spiskove-od-policijskih-agencija-iz-Bosnia and Herzegovina.html (Accessed on 20 May 2018).

sulting in a possible danger for starting new conflicts, conquering territories, and violating the peace and the Agreement.

Securitizing acteurs: In this particular case, the securitizing acteurs would be the Bosniac member of the Presidency of Bosnia and Herzegovina, the Minister of Interior of the Federation of Bosnia and Herzegovina, and the Director of the Police Directorate of the Federation of Bosnia and Herzegovina. Namely, they used the speech act by which the purchase of rifles for the police of the Republic of Srpska was presented to audience as a threat to the security, peace, and the Agreement in Bosnia and Herzegovina. Apart from that, they advocated for an intervention of the international community, thus further endangering the stability of the country. In conclusion, these acteurs insisted on such a speech act, although the political acteurs from the Republic of Srpska clearly stated that it was a matter of a purchase legally and constitutionally approved and covered by all necessary permits. ***Special measures:*** In this particular case, a special measure would be a special decision by NATO, WITH European officials of the Alliance, demanding that all police structures in Bosnia and Herzegovina deliver detailed lists of the arms in their possession for further checks, which resulted in temporary or a possibly permanent check of the purchase. In addition, there is another possible measure, hinted at by the political acteurs of the Federation of Bosnia and Herzegovina, which is the exercise of the Bonn authorizations by the Office of High Representative, with a view to sanctioning, suspending, or blocking certain politicians, decisions, or political moves from the Republic of Srpska. The Bonn authorizations imply a special measure superseding the Constitution, laws, and political systems in Bosnia and Herzegovina.

Audience: Given the political constellation in Bosnia and Herzegovina, and the fact that it is under some sort of protectorate and supervision on the part of the international community represented by the Office of High Representative (OHR), the audience in this case would be the ambassadors of the member countries of the Peace Implementation Council Steering Board (PIC)[16], which provided informal/tacit consent for the special measure, or a possible new measure reflected in the imposition of the Bonn authorizations.

It is evident on this example that social constructivism is realized through mere presence of a speech act, where a security challenge, risk, and threat is socially construed, or it is exaggerated in the least, by which the arming of the police of the Republic of Srpska is seen as a preparation for new conflicts rather than the improvement and modernizing of this institution.

Then, *the referent object of security* would initially be the Republic of Srpska, and then the whole community, that is, the state of Bosnia and Herzegovina, which would be endangered by the political destabilization of peace caused by the negative political discourses generated by political acteurs of the Federation of Bosnia and Herzegovina, and which would present *threat* in this case.

When the political threat in Bosnia and Herzegovina is concerned, it can be said that it comes from the inside and that it is closest to the *intentional threat* directed towards a political acteur from one entity by a political acteur from another entity.

In the end, it is necessary to further accentuate the fact that the accessible data was used for this analysis, along with some hypotheses referring to possible special measures, since the

16 Members of the Peace Implementation Council Steering Board are France, Italy, Japan, Canada, Germany, Russia, United States of America, Great Britain, Presidency of the European Union, European Commission, and the Organization of Islamic Conference, represented by Turkey. The Steering Board is in charge of providing political guidelines to the High Representative, who chairs the Board meetings in Sarajevo twice a month. In addition, the Steering Board meets twice a year at the level of political directors. More details on: http://www.ohr.int/?page_id=1220 (Accessed 28 May 2018).

process is still in progress. This is to clarify that this is not a matter of subjective approach to assessing the negative context, that is, political discourses, of either Entities, but a matter of testing the theory previously stated.

SYNTHESIS

The paper is a review of political security in Bosnia and Herzegovina based on the analysis of the existing political discourse within the country. In addition to the fact that Bosnia and Herzegovina was established with a very rare and complex political construction, it is also a country in a post-conflict context where there is still an opposing and disunited political attitude between the two Entities regarding the establishment and today's existence of Bosnia and Herzegovina – there are still identical, or at least similar antagonisms that were present even before the conflicts in Bosnia and Herzegovina started. Based on the analysis of one of common types of discourse in Bosnia and Herzegovina, one can conclude that, in Bosnia and Herzegovina, there is political threat to the security from within, whose character is that of intentional threat in correlation with the policies of the entities. Ultimately, as the referent object of security, there is the state of Bosnia and Herzegovina itself, threatened by this type of danger which could be a challenge to sustainability and security of the already existing organisational (in)stability of this state. Furthermore, based on all of the above, the author tries to check and test the securitization theory based on its constituent elements. The results show that, on the political scene of Bosnia and Herzegovina, there is the process of securitization in accordance with its basic theoretical premises, but this process has not been completed yet. However, one may undoubtedly conclude that, in Bosnia and Herzegovina, the process is also burdened with certain contours of social constructivism. Also, in order to assess the process as a whole, certain political preparations and decisions in Bosnia and Herzegovina should be transparent, available to the public, which causes difficulties in writing such a paper.

Finally, Bosnia and Herzegovina is exposed to political security threat coming from within the state, and it seems that the existing structure of Bosnia and Herzegovina is not able to oppose and then neutralize it, so the issue usually culminates with the engagement and intervention of international community. This situation in Bosnia and Herzegovina points to the fact that this is a fragile state with no capacity to face security threats such as this one on its own, thus presenting a danger in future not only for its existing organisation but also for the peace and stability in the region. There is no doubt that rearrangement is essential in this state, with a view to establishing stable and functional political institutions and homogeneity in the realisation of political goals.

The point of this paper is not to offer the solution, a complete overview and interpretation of theoretical and practical facts, but for the presented ideas to be useful for certain future constructive research and analyses related to the topic of this paper. Therefore, the paper presents a modest scientific contribution. Also, the paper is open for assessment, criticism and certain updates by the interested experts and scholars who are familiar with the matter.

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Topic V

CYBER CRIMES AND IT SECURITY

OVERVIEW OF SOME SECURITY ASPECTSOF SMART PHONES

Petar Čisar, PhD
University of Criminal Investigation and Police Studies, Belgrade
petar.cisar@kpa.edu.rs
Imre Rudas, PhD
Obuda University, Hungary
rudas@uni-obuda.hu

Abstract: Smart phones or mobile phones with advanced capabilities are used by more people. Their popularity and relatively weaker security level have made them attractive targets for attackers. Mobile phone security in the beginning has not kept pace with traditional computer security. Security methods, such as firewalls, antivirus software and encryption, were insufficiently represented on mobile phones, and mobile operating systems were not updated as frequently as those on personal computers. However, mobile security nowadays is a rapidly growing field in the security area. With the increase in the number of mobile devices and their applications, the need for mobile security has increased extremely over the past several years. This paper gives an overview of some of the security aspects that must be considered when choosing a particular model of a smart phone with a satisfactory level of security: biometrics, encryption, hardware-assisted security, sandboxed user data, VPN possibility etc. A special accent in the paper is placed on newer types of processors as one of the most important components of the mobile device and their security possibilities. A comparative analysis of the key technical characteristics of the most commonly used newer processors is also given. In addition, the paper also focuses on the use of mobile security software and Android browsers, pointing out its numerous useful features.

Keywords: smart phones, security, processor, metrics, mobile security software, Android browser

INTRODUCTION

Smart phones are becoming more popular and numerous users decide to buy a smart phone for their mobile communication. They offer more features than classic mobile phones, and one of the reasons of their popularity is the ability to expand device capabilities by adding new applications. Smart phones have been present in the mobile phone market for a long time, but they have gained real popularity with the appearance of iPhone smart phone (Apple) and Android operating system (Google).

Android and iOS are the two most widely used operating systems (OS) for smart mobile terminal devices. Although these two OSs share some similarities, such as layered architecture, the most important difference is in the type of code. Android is an open source operating

system, while iOS is a closed code. Closed nature makes the iOS operating system less flexible but less vulnerable.

Every advanced mobile phone, as PCs, is a potential target of attacks. These attacks use vulnerability characteristics for smart phones that can originate from their communication mode - for example, GSM, short message service (SMS), multimedia messaging service (MMS), Wi-Fi and Bluetooth, the worldwide accepted standards for mobile communications. There are additionally misuses which are focused on software weaknesses in the web browser or operating system. Besides, a few attack types depend on hardware vulnerabilities (electromagnetic waveforms, juice jacking, jail-breaking and rooting).

In accordance with the above, in general terms, three models of mobile platform threats can be formulated:

Attack with physical access - try to unlock phone, exploit vulnerabilities to bypass locking

System attacks - exploit vulnerabilities in mobile platform using web downloads, malformed data, operating systems etc.

Application attacks - use malicious application to steal data, misuse system and hijack other applications.

Android is considered to be one of the most common mobile operating systems. Its general security vulnerabilities can be formulated as: open source nature, fragmentation, slow moving upgrades, JavaScript binding over HTTP vulnerability and third party applications stores.

In the following figure, the degree of threat from malicious mobile malware is illustrated and it represents the number of detected malware packages worldwide.

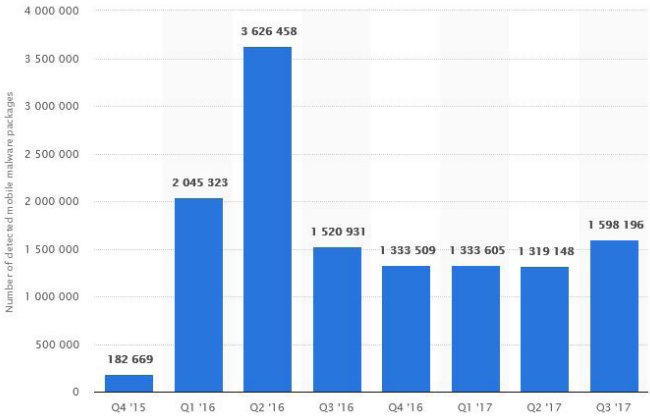


Figure 1. *Number of Detected Malicious Installation Packages on Mobile Devices Worldwide (from 4th quarter 2015 to 3rd quarter 2017)*[1]

There are various organizations worldwide focused on improving the mobile security. One of them is Open Web Application Security Project (OWASP). This is an open community dedicated to enabling organizations to develop, purchase, and maintain applications and APIs (*application programming interface)* that can be trusted. The primary aim of the OWASP Top 10 is to educate developers, designers, architects, managers, and organizations about the consequences of the most common and most important web application security weaknesses. The OWASP Mobile Security Project is a centralized resource intended to give developers

1 Statista, The Statistics Portal, https://www.statista.com/statistics/653680/volume-of-detected-mobile-malware-packages/

and security teams the resources they need to build and maintain secure mobile applications. Through the project, the goal is to classify mobile security risks and provide developmental controls to reduce their impact or likelihood of exploitation.

The OWASP identified and categorized the following top ten mobile risks in 2016:[2]

Improper Platform Usage (M1) – Misuses of a platform feature or failure to use platform security controls is covered in this category. It might include Android intents, platform permissions, misuse of TouchID, the Keychain, or some other security control that is a part of the mobile operating system. There are several ways that mobile apps can experience this risk.

Insecure Data Usage (M2) - This new category is a combination of M2 + M4 from Mobile Top Ten 2014. Insecure data storage and unintended data leakage are covered.

Insecure Communication (M3) - Poor handshaking, incorrect SSL versions, weak negotiation, clear text communication of sensitive assets are covered.

Insecure Authentication (M4) - Notions of authenticating the end user or bad session management is captured in this category. This can include:

- Failing to identify the user at all when that should be required
- Failure to maintain the user's identity when it is required
- Weaknesses in session management

Insufficient Cryptography (M5) - The code applies cryptography to a sensitive information asset. However, the cryptography is insufficient in some way. Note that anything and everything related to TLS or SSL goes in M3. Failing to use cryptography at all, when it should, probably belongs to M2. M5 is for issues where cryptography was attempted but it wasn't done correctly.

Insecure Authorization (M6) - Any failures in authorization are to be captured in this category (authorization decisions in the client side, forced browsing, etc.). It is distinct from authentication issues (device enrolment, user identification, etc.).

However, an authentication failure appears if the application does not authenticate users at all in a situation where it should. In this case, it is not considered an authorization failure.

Client Code Quality (M7) - This was the "Security Decisions Via Untrusted Inputs", one of our lesser-used categories. This would be the catch-all for code-level implementation problems in the mobile client. That's distinct from server-side coding mistakes. This would capture things like buffer overflows, format string vulnerabilities, and various other code-level mistakes where the solution is to rewrite some code that's running on the mobile device.

Code Tampering (M8) – Binary patching, local resource modification, method hooking, method swizzling, and dynamic memory modification are covered in this category.

Once the application is delivered to the mobile device, the code and data resources are resident there. An attacker can either directly modify the code, change the contents of memory dynamically, change or replace the system APIs that the application uses, or modify the application's data and resources. This can provide the attacker a direct method of subverting the intended use of the software for personal or monetary gain.

Reverse Engineering (M9) – Analysis of the final core binary to determine its source code, libraries, algorithms, and other assets is included in this category. Software such as IDA Pro, Hopper, otool, and other binary inspection tools give the attacker insight into the inner workings of the application. This may be used to exploit other nascent vulnerabilities in the application, as well as revealing information about back end servers, cryptographic constants and ciphers, and intellectual property.

2 https://www.owasp.org/index.php/Mobile_Top_10_2016-Top_10

Extraneous Functionality (M10) - Often, developers include hidden backdoor functionality or other internal development security controls that are not intended to be released into a production environment. For example, a developer may accidentally include a password as a comment in a hybrid app. Another example includes disabling of 2-factor authentication during testing.

SECURITY AND PRIVACY ASPECTS OF SMART PHONES

Android, as one of the most popular operating systems for smart phones (mobile phones with advanced capabilities) today, due to its openness of code, carries with it a series of potential security problems, which can be formulated in several categories (Čisar, 2017):

Open source - Since the entire source code is easily accessible, people with malicious intent may seek the ability to create security issues.

Fragmentation - With hundreds of manufacturers, who all contribute to the development of the operating system, viruses and malware of new generations easily exploit the weaknesses that are not found in Stock Android.

Slow moving upgrades - Android users are known for delays in adopting new patches and versions or migrating to a new version of the operating system. Using an outdated version of the operating system becomes more and more vulnerable to data and identity theft.

JavaScript binding over HTTP - Programmers can accept JavaScript connection method as the easiest way to load web content in an Android application, but this can be a source of major security problems. By opening the web view with HTTP, it gives the possibility for attackers to completely remove HTTP data or events by remote execution of application codes.

Third party Application Stores - Although this does not have to be a security problem in direct connection with Android, it deserves a certain amount of attention. The fact is that these stores contain more hidden malware than in the Google Play Store. Although not all third-party application stores are risky, it's still necessary to look carefully at those in which the application will be installed (available). The installed application in these stores does not necessarily have security threats, but it can create a bad reputation if users for some reason are dissatisfied with them.

When we talk about security and privacy aspects of smart phones, there are several differentiating factors which have to be identified:[3]

- Biometrics: There are two security directions including fingerprint scanners and other biometric unlocking algorithms. To begin with, there is a possibility that if someone's biometric identifiers were stolen, he wouldn't be able to simply change them as a password, making them for all time potential security risk. The second direction of reasoning is that if a security approach is less demanding, they'll probably really utilize it, in which case biometrics are better for general security. It depends on the user whether the fingerprint sensor is acceptable to him or not, but it is important to emphasize that having such option empowers other security-related features (for example, LastPass' fingerprint login).

- Encryption: There are two types of encryptions: file-based encryption (FBE) and full disc encryption. One of the two types is used by the majority of modern phones. FBE allows single files to be locked with different keys and it makes it more effective than full disc encryption since it uses only one key to lock the whole disc partition**.** Phones use the AES encryption standard, with 128/256-bit keys to decrypt the data.

3 Gadget Hacks, https://smartphones.gadgethacks.com/how-to/4-best-phones-for-privacy-security-0176106/

• Hardware-Assisted Security: Each phone calls upon the hardware to improve the general security of the device. iOS devices use the hardware to assist with encryption whereas the Android devices utilize the hardware to store cryptographic keys.

• Sandboxed User Data: If privacy is one among high issues, a user will need to keep up separate areas on their phone — perhaps one for work, and another for personal usage. If so, it is important that the data from every user account is completely separated ("sandboxed") and that the Android phones support this feature.

• Limit Advertisement (Ad) Tracking: Phones that work with Apple and Google services preinstalled, use an advertising tracking identifier (ID) to help marketing partners send targeted ads. This ID follows the user who uses different applications and services, which is problematic from the aspect of privacy. Apple allows restrict applications' abilities to view and use this identifier, while Google merely lets a user reset the ID and opt out of seeing personalized ads on Android devices.

• VPN Possibility: A virtual private network (VPN) allows rerouting internet traffic through an external server. Encrypt data traffic for obtaining increased level of security can be provided to a user by a VPN service. With Android devices, user can direct all types of internet traffic through a VPN. With an iPhone, a user can only use a VPN over Wi-Fi, unless they are willing to reset his device and enable "Supervised Mode" to get the VPN working on his mobile data connection.

• Block Internet Access for Applications: If someone does not want applications "phoning home," the ability to block internet access on a per-app basis is a significant advantage. With Android, this can be done by setting up a local VPN. With iOS, a user can easily disable mobile data access for an app, however, it is not possible to restrict Wi-Fi connectivity.

• Data Wipe After Failed Login: Some phones have a feature that triggers an automatic factory reset when someone attempts to enter user's PIN or password too many times, if enabled. This is very effective when it comes to fending off intruders, as it makes brute-force password attacks impossible.

• Password Management Service: The password management service (LastPass) has varying degrees of functionality on different phones. Some of the devices allow user to log into the service using his fingerprint, others will auto-populate passwords into applications and websites for the user.

• Provide Security Center Application: If someone considers the security very important, it is recommended to have a centralized application that helps handling security needs. For example, the DTEK security platform (by BlackBerry) gives user an overview of his phone's actual security level and allows him to easily adjust important security settings.

• Operating System Common Vulnerabilities and Exposures (CVE): The majority of modern phones run either iOS or Android. In recent years, both of these operating systems have had numerous CVEs discovered, so it is important to keep track of exactly how vulnerable they are.

• Security Patch Timeframe: Apple doesn't adhere to a specific timeframe with its security patches. However, updates are generally issued within a month of security bugs being discovered. Android releases security patches monthly and leaves it to the original equipment manufacturer (OEM) to distribute to their devices. Since the Pixel 2 is a Google device, it will get Android security patches first.

• Bug Prize: Some device manufacturers offer a prize for anyone who can find significant weaknesses in their phone's software, stimulating the process of discovering and closing security loopholes (bugs). With a higher bounty, people will generally be more motivated

to find these bugs. Some companies invite only trusted bug reporters to earn a bounty while others will let anybody report bugs and claim the bounty.

Hardware Factors				
Biometrics	Fingerprint Scanner	Facial Recognition	Fingerprint Scanner	Fingerprint Scanner
Encryption	Full Disk (AES 128)	File-Based (AES 256)	File-Based (AES 256)	File-Based (AES 256)
Hardware Assisted Security	Hardware Stored Encrypted Keys	Dedicated Hardware Chip	Hardware Stored Encrypted Keys	Hardware Security Module
OS Considerations				
Sandboxed User Accounts	Yes	No	Yes	Yes
Restrict Ad Tracking	No	Yes	No	No
Always-On VPN	Yes	Supervised Mode Only	Yes	Yes
Block Internet Access for Apps	With VPN App	Mobile Data Only	With VPN App	With VPN App
Data Wipe After Failed Login	Yes	Yes	No	No
Important Apps				
LastPass Fingerprint Login	Yes	No	Yes	Yes
LastPass Auto-Populate	Yes	No	Yes	Yes
Stock Security Center App	DTEK	None	Knox	None
Field Testing				
OS CVEs (3-Year Total)	1383	913	1383	1383
Security Patch Time Frame	1 Month	Within 1 Month	1 Month	1 Month
Bug Bounties	Open (Undisclosed)	Closed (Up to $200K)	Open (Up to $200K)	Open (Up to $200K)

Figure 2. *Different Metrics for Ensuring Security and Privacy (BlackBerry KEYone (1st column), iPhone X (2nd column), Samsung Galaxy Note 8 (3rd column), Google Pixel (4th column))*[4]

PROCESSORS

The processor is the main part of a smartphone, which has a dominant influence on the operating speed. Therefore, it is crucial that it operate at a higher speed. The clock rate and the number of cores are not the only factors. They are called system-on-a-chip (SoC). In general, a SoC consists of a central processing unit (CPU), graphics processing unit (GPU), modem, multimedia processor, security device and signal processor.[5]

Qualcomm's Snapdragon 845 system-on-chip is the latest generation processor. Besides being powerful, energy-efficient, and optimized for artificial intelligence (AI), it is also highly secure. The Snapdragon 845 is the first to feature Qualcomm's secure processing unit (SPU), a new subsystem designed to protect biometrics, data, payment information, and SIM data. When someone performs some kind of action (save a file or take a photograph), the system-

4 Gadget Hacks, https://smartphones.gadgethacks.com/how-to/4-best-phones-for-privacy-security-0176106/
5 AndroidPIT, https://www.androidpit.com/fastest-smartphone-processors

on-chip's SPU will generate a unique key. In addition, applications (for instance, WeChat and Facebook) can use the SPU to generate keys as needed.[6]

The SPU is completely isolated from the system. Although it is not a "system master," meaning it cannot access information from other systems or take control of new processes, it is able to access information from other systems independently.

It plays a crucial role in biometrics. In future, the manufacturer wants to store biometric data inside the SPU, run any necessary authenticator code inside the SPU, and terminate the data within the SPU itself. This chip is presented as a safer alternative to secure elements like ARM's TrustZone, which have been exploited before.

Table 1. *Newer SoCs comparison7*

	Snapdragon 845 (Q1 2018)	Snapdragon 835 (Q2 2017)	Apple A11 Bionic (Q3 2017)	Kirin 970 (Q3 2017)
CPU (Central Processing Unit) Architecture	64-bit	64-bit	64-bit	64-bit
CPU Cores	Octa Core 4 x 2.8 GHz Kryo 385 4 x 1.7 GHz Kryo 385 X20 LTE modem	Octa Core CPU 4 x 2.45 GHz Kryo 280 4 x 1.9 GHz Kryo 280 X16 LTE modem	Hexa-core (2 Ч Monsoon + 4 Ч Mistral) Max up to 2.34 GHz	4 x Cortex A73 at 2.4 GHz 4 x Cortex A53 at 1.8 GHz
GPU (Graphics Processing Unit)	Adreno 630	Adreno 540	Apple designed custom 3 core(s) GPU	Mali G72 MP12 12-core
RAM	Up to 8 GB dual channel LPDDR4x	Up to 8 GB dual channel LPDDR4x	3 GB of LPDDR4	Up to 8 GB dual-channel LPDDR4
Manufacturing Technology	10 nm FinFET	10 nm FinFET	10 nm FinFET	10 nm FinFET
NPU (Neural Processing Unit)	Hexagon DSP 2nd generation	Hexagon DSP	Neural Engine	NPU
LTE (Long Term Evolution)	Cat 18, up to 1.2 Gbps	Cat 16, up to 1 Gbps	Cat 16, up to 1 Gbps	Cat 18, up to 1.2 Gbps

Popularity of CPU's in modern phone models:

- BlackBerry KEYone - Qualcomm Snapdragon 660
- iPhone X - Apple A11, Kirin 970
- Samsung Galaxy S8 Note - Qualcomm Snapdragon 835
- Google Pixel 2 - Qualcomm Snapdragon 835

6 Xda-developers, https://www.xda-developers.com/qualcomm-snapdragon-845-secure-processing-unit/

7 SuggestPhone, https://www.suggestphone.com/blog/snapdragon-835-vs-845-apple-a11-bionic-comparison

- Huawei Mate 10 Pro - Kirin 970
- HTC U11 - Qualcomm Snapdragon 835
- Sony Xperia XZ Premium - Qualcomm Snapdragon 835
- LG V30 - Qualcomm Snapdragon 835
- OnePlus 5T - Qualcomm Snapdragon 835

CPU SECURITY

Snapdragon 845:[8] Includes a hardware isolated subsystem called the Secure Processing Unit (SPU). The SPU is an isolated security-focused processor embedded in the system-on-a-chip. The manufacturer wants to store all that biometric data in the vault-like environment, which is similar to what Apple does on its A11 Fusion processor in the iPhone. The Secure Enclave Processor has its own microprocessor and encrypted memory and it handles ultra-sensitive data like Face ID data and decryption keys. The SPU stores similar sensitive data (payment information, SIM information and more) and it is kept separate from other components to prevent hacking.

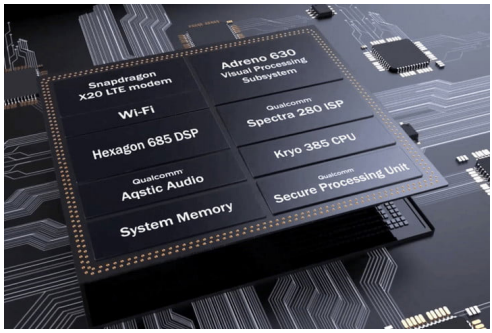


Figure 3. *Snapdragon 845 Structure*

Snapdragon 835:[9] Built upon the strength of the Snapdragon security platform, this chip is designed to safeguard the entire device from mobile security threats. The mobile security framework is engineered to provide multilevel security by combining a hardware-level solution with next-generation software for robust biometrics security. The newest security components include a secure camera, secure token and Smart Protect for latest mobile security measures.

MOBILE SECURITY SOFTWARE

This type of software will improve mobile device's performance by cleaning junk files (analyze and safely remove the junk files that take up storage space), optimizing device memory (phone boost - kill off buggy applications that slow down the device and steal memory), providing antivirus and antimalware protection (keeping the device safe from viruses, trojans,

8 Digital Trends, https://www.digitaltrends.com/mobile/qualcomm-snapdragon-845-security/
9 Qualcomm, https://www.qualcomm.com/solutions/mobile-computing/features/security/mobile-security

vulnerabilities, spyware and protecting personal information) and managing the installed applications (battery saver - hibernate background battery draining applications to save power).

On-device protections (services) are: malicious applications (anti-malware protection and removal options for downloaded potentially harmful applications), safety net (protection from network and application-based threats), safe browsing (protection from deceptive websites - includes a web filtering feature to block dangerous sites), developer APIs (allows third-party applications to use security services), Android device manager (protection for lost or stolen devices – anti-theft), smart lock (encourage lock screen adoption by reducing friction around device unlock).

The aim of the research carried out by AV-Test (the independent IT-security institute) is to directly detect the latest malware, to analyze it by using state-of-the-art methods and to inform customers of the top-quality results obtained. All products tested and inspected by AV-Test undergo complex test procedures in terms of their performance in the following categories:[10]

- protection (protection against malicious Android applications)
  - detection of the latest Android malware in real-time
  - detection of the latest Android malware discovered in the last 4 weeks
- usability (impact of the security software on the usability of the device)
  - performance: the battery life is not impacted by the application
  - performance: the device is not slowed down by the application during normal usage
  - performance: too much traffic is not generated by the application
  - false warnings during installation and usage of legitimate applications from Google Play Store
  - false warnings during installation and usage of legitimate software from third party application stores
- features (further important security features)
  - Anti-Theft (Remote-Lock / Remote-Wipe / Locate): Locate, Lock or Wipe your device when it is lost or stolen
  - Call Blocker: Block calls from specific or unknown numbers
  - Message Filter: Filter messages and/or mails for unwanted content
  - Safe Browsing: Protection of malicious websites and/or against phishing
  - Parental Control: Features to control or observe the activity of children on the device
  - Backup: Personal data can be saved to SD-card or cloud storage
  - Encryption: Any kind of encryption is supported (e.g. device encryption, SD-card encryption or VPN)

The testing results for January 2018 are given by the figure below.

10 AV-Test, https://www.av-test.org/en/antivirus/mobile-devices/

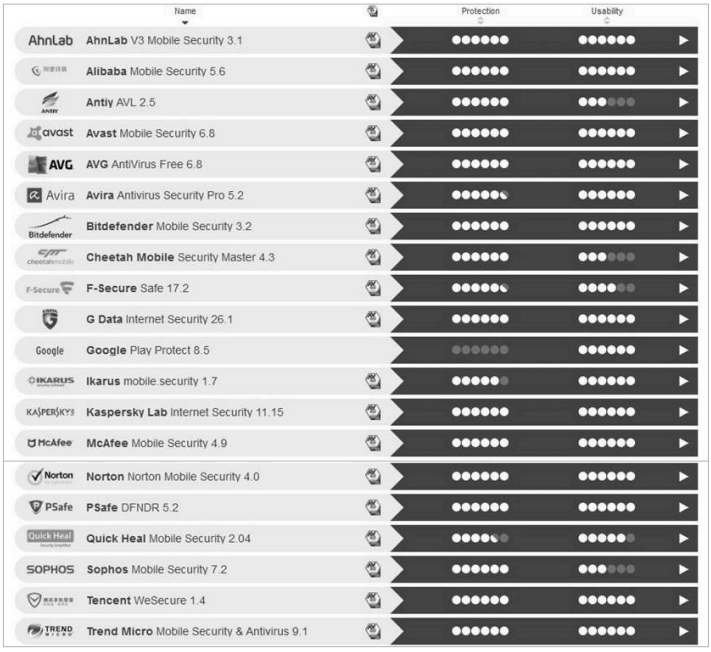


Figure 4. *AV-Test results for January 2018*

ANDROID BROWSERS

The choice of mobile phone's web browser affects the overall security of communication. There are several desirable security options to consider when choosing and installing an Android browser:

- Private (incognito) browsing: The ability to browse the web secretly, without data saving and syncing across devices. Browsing history and logins are not recorded while using this mode. History, cookies and site data are never stored on disk, and never transmitted.
- Advertisements blocker: The ability to blocks advertisements in web pages, either natively or with an extension.
- Tracking protection: Trackers are used by corporations to gather information (such as device information, time, and type of browser) about the user when visiting their website. This protection blocks these trackers, disabling features like JavaScript, DOM (Document Object Model) storage, and cookies that are used by websites to record this information.
- Extensions: The ability to add extra features to the browser by installing small programs which enhance browsing experiences.
- Password manager: The ability to store password information to autofill frequently visited websites. Privacy protection: Automatically clears all browsing history when the application closes.
- HTTPS everywhere: Enforces SSL (Secure Sockets Layer) security wherever that's possible (encrypts communications with many major websites, making browsing more secure).

• Fraud prevention: Warns the user when browsing potentially fraudulent or malicious websites.

• Malicious download protection: Scans apk-file downloads for malware, keeping a device secure.

CONCLUSION

Based on the various aspects of security shown in the paper, it can be concluded that ensuring a sufficiently high level of security for mobile phones is a complex task. Namely, it is necessary to provide the implementation of a wide range of system, hardware and application security methods. In that sense, it is recommended to use mobile devices with newer generation processors, which incorporate numerous improvements from the security domain. Also, the application of adequate and up-to-date mobile security software can significantly raise the level of security.

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THE IMPORTANCE OF IOT AND IOT FORENSICS

Aleksandar Miljković
Information Technology Studies, Criminalistics and Police University, Belgrade, Serbia

Milan Čabarkapa, PhD
School of Electrical Engineering, University of Belgrade, Serbia

Milan Prokin, PhD[1]
School of Electrical Engineering, University of Belgrade, Serbia

Đurađ Budimir, PhD[2]
University of Westminster, London, United Kingdom

Abstract: Nowadays we are living in the time of Internet of Things (IoT) because a majority of machines/things (for example cars, smoke detectors, watches, glasses, web cameras, etc.) are being associated with the Internet. The number of machines that have a capacity of remote access to gather some important information is constantly increasing. On the one hand, this advancement makes the human life more comfortable and convenient, while on the other hand, it raises issues related to security and privacy. Therefore, it notably grows challenges for the information technology (IT) security specialist because IoT gadgets are mass used on the criminal scene. In this paper, we discuss the different aspects related to IoT technologies and its security issues. After that, we focus on the current challenges of cybercrimes related to IoT. Finally, we give an introduction in one new IT filed named IoT forensics.

Keywords: cybercrime, Internet of Things, IoT forensics, security.

INTRODUCTION

Internet of Things (IoT) is a new technology that enables human life to interact with billions of devices worldwide. [3],[4]This fact provides supreme benefits in human life. However, the open nature of the interaction between the IoT devices establishes the possibility to take advantage of cyber criminalist access data transferring between different devices. Ensuring data integrity of each device in IoT paradigm is a major challenge for the IoT community. Cur-

1 e-mail: proka@etf.rs
2 e-mail: d.budimir@wmin.ac.uk
3 Milan Čabarkapa, Milan Prokin, Goran Šimić, Nataša Neštković, Đurađ Budimir, (2017) Internet of Insecure Things, Archibald Reiss Days, 3(3),, 101-109
4Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M. (2013). Internet of Things (IoT): A Vision, Architectural Elements, and Future Directions. Future Generation Comp. Syst., 29, 1645-1660.

rently, IoT community is starting to think about the safety of IoT in terms of the development of embedded security solutions, middleware, a cloud security and much more. However, all these efforts are directed to the detection and prevention of security attacks in standard Information Technology (IT) systems. These efforts lack investigation of attacks causing problems specific for IoT paradigm. Therefore, the paradigm IoT requires a systematic solution to find the underlying cause and minimize the different attacks.

There is no unique solution to protect the entire Internet infrastructure of various security attacks. In other words, there is always the possibility that an attacker bypasses the security barriers due to rapid progresses in technology, market, open source, numerous applications and a variety of other technology related things. The mechanism of detection and prevention fails to cope with the above mentioned bad scenario in order to have a totally safe and secure environment for IoT users. This leads to the completely new IT field named IoT forensics which play a role in investigating violations of safety found in the IoT infrastructure. IoT forensics is a research and engineering area that offers a way to identify the sequential steps carried out by the striker during the attack. These sequential steps are identified by collecting evidence from a variety of sources, such as devices, diaries, applications, and networks to be used at the time of IoT cyber-attack.

This evidence will confirm new forensic solutions for IoT with conviction of the attacks. It will also help in finding the underlying causes of the attacks. In other words, it will not only help in reducing the attacks, but it will control similar attacks in the future as well. This raises the key question: where should the court related things be integrated into the IoT infrastructure in order to have a strong investigative mechanism? Sincerely, this is an issue that needs a lot of thinking that takes as much as possible correct answer. Basically, there are three components of IoT that should be protected in order to have a safe interactive environment between devices. These include: IoT devices, cloud infrastructure and IoT network. However, the main challenge is the dynamic nature of IoT solutions. For example, the pull-out mechanism for IoT court evidence may vary from device to device, such as medical appliances, home devices, agricultural and other various sensors, etc. In addition, this evidence should be collected from cloud computing, sensor networks and radio frequency identification technology (RFID). As a result, IoT forensics experts should cover several different technologies used in the typical IoT infrastructure.

IOT TECHNOLOGIES

From smart watches to automatic climate control, Internet of Things gives us a wide array of safety and efficiency benefits for consumers and businesses alike. Broken down by industry, the manufacturing sector appears to have the most to gain from the adoption of IoT, with connected factories increasing productivity, optimizing inventory planning, reducing waste, and saving on energy costs and equipment maintenance. Industry is already exploring how connected devices can improve the safety and reliability of complex processes and achieve greater energy and operational efficiencies. [5]

IoT innovations will create information that enables organizations to settle on more-educated choices, thus enhancing proficiency, efficiency, administration, and quality control. For instance, amid cross-country flights, the sensors on a business flying machine different frameworks can create information to enhance security and flight taking care of. Adminis-

5 The department of commerce internet policy task force & digital economy leadership team (2017), Fostering the advancement of the internet of things, Retrieved from http: https://www.ntia.doc.gov/files/ntia/publications/iot_green_paper_01122017.pdf

trators in an assembling office with mechanical sequential construction systems can naturally track each activity down to the activity of a screw being turned. Any issues can be tended to as they are recognized.

Customers are probably going to see profits by IoT in their homes. The Customer Innovation Affiliation recommended that from the purchaser point of view, Web empowered apparatuses, home computerization parts, and vitality administration gadgets are pushing us toward a dream of the "smart home," offering greater security, vitality effectiveness, and accommodation. As the Union of Car Makers noted in its remarks, headway in vehicle sensors, interchanges innovation, and vehicle mechanization can possibly fundamentally decrease the event or seriousness of accidents by adjusting for blunders in human driving. [6]

Wearable wellness and well-being observing gadgets and system empowered restorative gadgets are relied upon to change medical services, as indicated by the Immediate Promoting Affiliation. Through remote well-being and training administrations, IoT innovation holds tremendous guarantee for burdened and provincial networks. Interfacing medicinal gadgets could extraordinarily enhance the quality and adequacy of administration, while additionally extending the compass of restorative experts and diminishing expenses. For instance, the GSM Affiliation recommended that IoT-empowered remote well-being observing enables medicinal experts to encourage early intercessions, enhance adherence to therapeutic administrations, and diminish readmission rates. The Web Society expressed that IoT will be useful for individuals with handicaps and the elderly, enhancing levels of autonomy and personal satisfaction at a sensible cost by diminishing the quantity of in-person visits expected to give the required care.

IoT benefits are not kept to the business and customer world. Streamlined information and investigation will likewise empower governments to convey better, less expensive, and more effective open administrations. The changes proposed in crisis reaction and person on call abilities alone are exceptionally reassuring, for example, expanded gathering and sharing of information among people on call. Further, numerous IoT foundation enhancements can furnish governments with cross-cutting arrangements. For instance, as indicated by the Eventual fate of Security Discussion, sensors on streets and in rush hour gridlock signs can take into consideration dynamic toll evaluating and movement control to diminish blockage. Additionally, the Gathering noticed, these mechanized sensors can turn road lights on and off in view of road utilize, possibly lessening both vitality utilization and power costs. Associated gadgets can pinpoint exorbitant breaks in water channels, recognize flooding storm depletes that undermine to blend open water with sewage, or distinguish the territory of a power blackout rapidly without depending on reports from human onlookers. These gadgets can likewise enable occupants to better comprehend their capacity of water utilization, which may goad them to ration utilize and help diminish their utility expenses.

A key capacity of government at all levels, as per the Web Society, is likewise to accommodate the well-being and security of its residents and the potential advantages of a hearty IoT condition to enhance open well-being, all around archived crosswise over law implementation, fire administrations, crisis restorative administrations, and country and outskirt security. Wearable sensors, body cameras, rambles, and Global Positioning System (GPS) trackers are a couple of cases of advances being conveyed in the field today. Such gadgets will increment situational attention to spare lives, enhance operational productivity to bring down expenses, and empower prescient examination to recognize future open security circumstances. Furthermore, the expansion of sensors and prescient examination utilized by open well-being experts will profit subjects by giving continuous access to better data previously calamity

6Talari, S., Shafie-khah, M., Siano, P., Loia, V., Tommasetti, A., & Catal, P.S. (2017). A Review of Smart Cities Based on the Internet of Things Concept.

strikes, which will enable individuals to remain safe in crises.

IOT SECURITY ISSUES

IoT will be incorporated into our lives to a remarkable degree. While the PC and Web transformations have pushed a greater amount of our lives into the information area, IoT will proceed with that pattern and bring both programming and availability into almost every part of the home, venture and open space. One remark noticed that few variables add to the additionally difficult condition of expanded availability, including: the profoundly arranged nature of IoT makes an extensive number of assault surfaces that can be abused; some IoT gadget producers have not taken after built up digital security best practices utilized as a part of other data security settings; and some associated gadgets will gather tremendous measures of individual data, empowering high effect attacks.[7]

Reliance on IoT amplifies the security hazard on every area, regardless of whether it is the power system, our vehicles, or kids' toys. The distributed denial of service (DDOS) assault in October 2016 on the Domain Name Service (DNS) supplier's query benefit that utilized a multitude of IoT gadgets ensured just by processing plant default passwords is a case of how Web associated gadgets have changed the digital security condition. The case was the most obvious and expansive case of the potential dangers that must be alleviated while thinking about IoT.

The risks for IoT systems that support the industrial sectors of any economy are even more challenging according to IBM. Industrial devices are connected to the Internet to allow for broader visibility, control, and maintenance, but these devices can also become potential attack targets.[8]

In the meantime, analysts have noticed that digital security best practices are not primary ideas for some IoT device producers. The producers of recently wired gadgets, e.g. a machine maker building up a remote empowered fridge, may have practically no experience gathering, anchoring, and securing purchaser information, the Electronic Frontier Foundation (EFF) said in its remarks. EFF included that new businesses building IoT advances and interfaces out of the blue may center essentially on getting an item to showcase, without thinking about how to ensure and secure PC systems or information. Analysts state that diverse arrangements of best practices will be applicable for various IoT substances, e.g. equipment producers/integrators, designers, deployers, and administrators.[9]

7Jaya Baloo , Erik Brands, Frederique Steels.(2018). The technology trends KPN has on its rada, 2nd edition

8 James Manyika, Michael Chui, Peter Bisson, Jonathan Woetzel, Richard Dobbs, Jacques Bughin, Dan Aharon,. (2015) The internet of things: mapping the value beyond the hype. Retrieved from: https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/The%20Internet%20of%20Things%20The%20value%20of%20digitizing%20the%20physical%20world/Unlocking_the_potential_of_the_Internet_of_Things_Executive_summary.ashx

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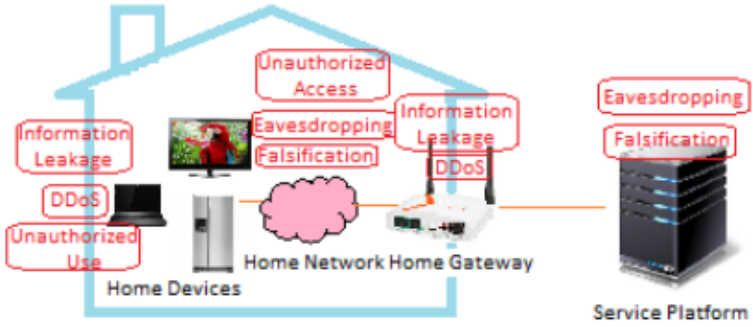


Figure 1. -Threats in smart home in IoTs.[10]

The most common problems in IoT security are[11]:

- Lacking authentication and authorization of devices
- Absence of transport encryption for data
- Uncertain Web interface
- Unstable programming and firmware
- Inadequate verification and approval
- Absence of transport encryption
- Unstable cloud interface
- Unreliable portable interface
- Uncertain programming and firmware

CYBER CRIMES RELATED TO IOT

As mentioned in [10][12] there are several types of cyber crime related to IoT.

- Smart vehicles paradigm is becoming one of the main IoT industry goals. It should be underlined that cyber crime examples in this field such as getting direct wireless connection to the car components and controlling vehicle's driving, obtaining access to the car's diagnostic equipment or blocking garage entrance or car entrance could be enormously dangerous mainly for the human lives.[13]
- Safety cameras used by private companies or integrated cameras on baby monitors used

10 Mirza Abdur Razzaq, Muhammad Ali Qureshi, Sajid Habib Gill, Saleem Ullah. (2017). Security Issues in the Internet of Things (IoT): A Comprehensive Study. (IJACSA) International Journal of Advanced Computer Science and Applications, 8(6), 383 .-388 . Retrieved from: http://thesai.org/Downloads/Volume8No6/Paper_50-Security_Issues_in_the_Internet_of_Things.pdf

11Hewlett Packard IoT research study", available online: http://files.asset.microfocus.com/4aa5-4759/en/4aa5-4759.pdf

12Milan Čabarkapa, Milan Prokin, Goran Šimić, Nataša Neštković, Đurađ Budimir, (2017) Internet of Insecure Things, Archibald Reiss Days,3(3),, 101-109

13 Keen Security Lab of Tencent, "Car Hacking Research: Remote Attack Tesla Motors", available online:http://keenlab.tencent.com/en/2016/09/19/Keen-Security-Lab-of-Tencent-Car-Hacking-Research-Remote-Attack-to-Tesla-Cars/

in homes and day care centers can be attacked by the cyber criminals. [14]

- A serious destruction could be caused if criminals gain access to unprotected devices used in home health care systems, such as those used to collect and transmit personal health monitoring data or systems used for delivering medicines. [15]
- Criminals in a cyber space can attack unsafe wireless connections for programmed devices, such as security systems, automatic garage doors, smart thermostats and smart home lighting. [16]
- Cyber criminals are also using home-networking routers, connected multi-media centers, TVs, and home appliances having wireless network connections as the input vectors for sending malicious email messages.[17]
- Smart locks are used in various types of IoT devices (for instance Samsung's open Smart Things platform). [18]
- IoT application in industry can cause serious problems as well.
- Business-critical systems are also vulnerable and can be attacked by cyber criminals through the Internet.

The new developed digital forensics tools have to integrate tools capable for dealing with this kind of challenges.

IOT FORENSICS

There is a lot of literature related to the digital forensics field including the computer forensics, digital forensics, cyber forensics, etc. In the computer forensics, computer uses digital technology to develop and provide evidence for the court and prove or disprove a claim. A slightly different definition of digital forensics is given by John Vacca. According to his opinion, a computer forensics involves the preservation, identification, extraction, and documentation of evidence stored on a digital computer. Digital evidence is stored within a computer system, so it is impossible to see the content without the help of appropriate forensics tools.

There are several aspects of difference and similarity between traditional and IoT forensics. In terms of evidence sources, traditional evidence could be computers, mobile devices, servers or gateways. In IoT forensics, the evidence could be home appliances, cars, tags readers, sensor nodes, medical implants in humans or animals, or other IoT devices. IoT technology is a combination of many technology zones: IoT zone, Network zone and Cloud zone. These zones can be the source of IoT Digital evidences.[19],[20]

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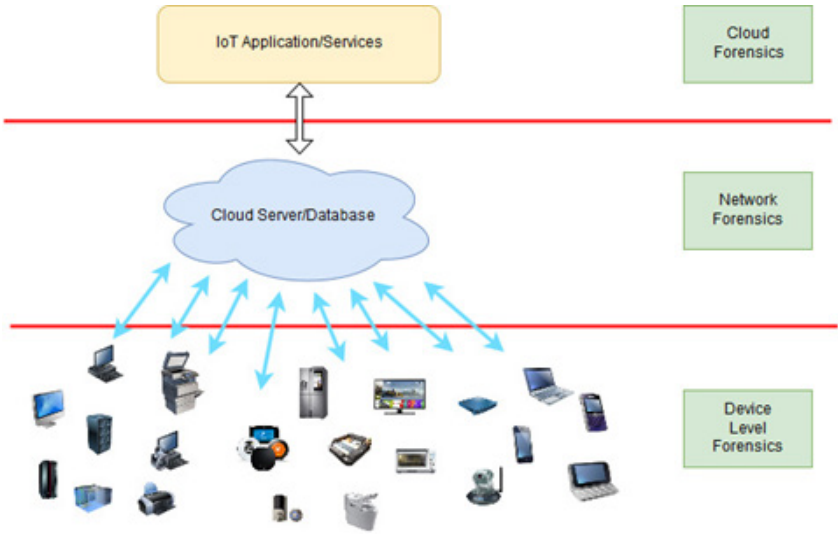


Figure 2. - IoT technology zones

The main differences between digital forensics and IoT forensics are:

- Identification of Digital Evidence:
  - Digital forensics: hard drives, mobile phones, networks, etc.
  - IoT forensics: sensors, hearing aids, etc.

- Keeping Digital Evidence:
  - Digital forensics: transcription ban software and other standard software, such as FTK, EnCase, etc.
  - IoT forensics: hardware and software for IoT devices.

- Digital evidence analysis:
  - Digital forensics: based on the theories and principles of information technology;
  - IoT forensics: reliance on the physical and mechanical properties of things.

- Presentation of Digital Evidence:
  - Digital forensics: Demonstration at a conference or by mobile phone with oral presentation;
  - IoT forensics: experimental demonstrations including oral presentation.

The development of IoT technology has made a significant breakthrough in the field of investigation, especially with regard to data interaction. However, there are many challenges regarding IoT Forensics.

Many IoT data are distributed across different locations and beyond them the user has no control. Data can be stored in Cloud, third-party locations, mobile phones, etc. One of the greatest challenges that IoT forensic investigators can encounter is the location identification itself, as long as they were collected. In addition, IoT data can be stored in different countries, which means that it is essential for the investigation process to respect the regulations of these

Approaches. 9th IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing, 608-615.

other countries. The example of such a big case is the event from August 2014 when Microsoft refused to comply with an investigative order requesting search for data stored outside the country listed in the US order, which made the case considerably complicated and left it open-ended time period.

With IoT device storage limits, the lifetime of the IoT device is short and it can easily be overwritten, which can result in the loss of the evidence. For this reason, one of the challenges is the over-reliance of evidence on IoT devices before they are overwritten. Transferring data to another "thing", such as a local hub or cloud, would be an easy solution, but it does bring a new problem that is closely related to securing a secure chain of evidence and by proving that the evidence is not replaced or modified.

The majority of cloud users are anonymous because the cloud does not require the correct user information when they log in to the service. This means that the identification of a criminal is impossible. For example, although the investigators find evidence in the cloud, it only proves that the concrete device is the cause of the criminal act but it does not mean that evidence can reveal the identity of a criminal.

Evidence of the IoT device may be altered or deleted due to lack of security, which may lead to the fact that such evidence is not relevant enough and is not accepted by the court. For example, if some companies do not update their devices regularly or in general or simply at some point cease to release the support framework of the device, this can lead to devices becoming vulnerable when hackers discover new vulnerabilities.

During the identification phase of digital forensics, an investigator must identify and collect evidence from the crime scene. Usually the sources of these data are computers or mobile phones. However, in IoT forensics, the source of evidence is devices such as a smart fridge or a smart coffee machine. Therefore, investigators face many challenges. One of the challenges is identifying and finding the IoT device at the crime scene. It is possible that the device is switched off due to the discharge of batteries, so it is very difficult to find it, especially if the IoT device is small or in a hidden place. Depending on the type and size of the device, taking the device to a laboratory may also be a challenge that cybercrime inspectors may encounter. Additionally, extracting evidence from such devices is a challenge because most manufacturers use different platforms with different operating systems and hardware. An example is Closed-circuit television where manufacturers apply different system formats in their devices. Proper return of data from the CCTV storage facility is still a challenge.

Another challenge is the fact that cloud storage uses a different format than the data format generated by the IoT device itself. Moreover, the user does not have direct access to his data and the data is displayed in a different format than the one they are stored in. In addition, it is possible that data at different locations are processed by some analytical functions that are stored on cloud. Therefore, the data need to be returned to the original format before the analysis so that it can be accepted in court.

CONCLUSION

IoT forensics as a new field requires optimal solutions from researchers, manufacturers of security devices, IoT experts and owners of cloud computing infrastructure to ensure IoT safe from collapse during the attack. Various cyber security research teams should be integrated with the IoT retailers to consider how complete IT field can be tolerant to errors that can occur through a variety of IoT cyber-attacks. This requires brainstorming potential of highly qualified researchers, IoT experts, device vendors and owners of cloud computing solutions. Their joint efforts will lead to a synergistic effect through the optimal and prompt response to the IoT cyber-attacks. There is a need for huge investment in research so that the secure IoT solution dream can become a reality in the next decade. Motivating IoT forensics authorities will create various opportunities for research projects that will enable researchers around the world to participate and provide their ideas and suggestions.

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A NOVEL MULTI-ATTRIBUTE DECISION-MAKING METHOD TO FIGHT THE CYBER-CRIME

Aleksa Maksimović
Slobodan Nedeljković
Ministry of Interior of the Republic of Serbia

Mihailo Jovanović
Office of the Government of the Republic of Serbia
for E-Administration and IT

Jelena Mišić
Vojkan Nikolić
Dragan Randjelović
University of Criminal Investigation and Police Studies, Belgrade

Abstract: Due to the vulnerability, insecurity, a large number of users, large availability and lack of universal legal boundaries, the Internet denotes convenient place for a variety of criminals. The users in such a vulnerable environment are increasingly confronted by the national legal systems, international organizations and associations, as well as by the "non-government sector" and end users. Therefore, it is necessary to alleviate negative consequence and decrease the losses caused by criminal activities. Due to the increasing amount of data necessary to combat this type of crime, the demand for more complex and difficult decisions is constantly growing. Since the decisions on a large amount of data to be processed and used are impossible to be brought manually, the use of computers is indispensable. The decision theory includes various decision-making methods, such as single-attribute, multi-attribute, and multi-object decision-making methods. Concerning the specific nature of the cyber-crime, which is based on the Hi-Tech informational technologies, quick and adequate decision-making methods where decisions depend on multiple criteria, such as a multi-attribute decision-making method, are very significant and urgently need tools to fight the cyber-crime. Such a method for decision-making and its implementation is described in this paper. The basis of the research is the implementation of the method AHP (Analytic hierarchy process) and ELECTRE (Elimination Et Choix Traduisant la REalite). AHP is used to determine weight coefficients and ELECTRE to select the most optimal alternative.

Keywords: AHP algorithm, cyber-crime, decision-making, ELECTRE algorithm, Python programming language

INTRODUCTION

In the modern definition of a combat against crime, there is rarely only one decision making factor involved, therefore it is necessary to make these decisions based on a multi-criteria analysis. For a proper decision, it is necessary to take into account as much factors that may have influence on the decision as possible. However, the relation between those criteria is also important. It is usually up to the decision maker to determine those relations, which is not always a simple task, especially when some of the criteria are qualitative. When determining the relations among criteria, decision maker can use empirical, statistical and normative methods. Empirical method is the most common and the oldest method that is still being used. Using this method, a criterion is assessed based on the personal and other people's experiences. However, this method is very crude and may lead to significant inaccuracies and mistakes. Statistical method is a method that uses previously gathered and statistically processed data, obtained by the previously occurred cases of similar nature that were successfully overcome. These data make a good base ground on which a solid assessment of a concrete criterion can be executed. The statistical method is significantly more modern and more accurate than the empirical method. However in practice, statistical data of previously realized projects are very rarely available because they are either kept under the veil of secrecy for the sake of combating the crime, so the criminals could not gain the upper hand over security forces, or are not available because even when it is possible to store them, the data are not recorded and systematically observed. Normative method is a method in which the significance of the criterion is determined by characteristic norms or standards of a specific criterion. Those normative characteristics were obtained from previous scientific research, measurements and exact calculations. When using this method, it is very important to explicitly use only those standards that were tested and accepted as norms. Using this method is very difficult in practice because it is very hard to find norms and standards, especially in a delicate subject as this one. Practice has shown that the hybrid method, method based on the combination of some of the three above mentioned methods, the one that besides exact and calculated standard enables usage of empirical norms where exact norms are not available, is the best for decision making. It is certain that if exact norms are used more frequently, the decision made will be better. Operational decision making, which means making the right decisions and fast, because the cyber-crime threats must be answered as fast as possible, is the use of scientific methods in order to enable decision makers to have quantitative identifiers at their disposal, based on which they will be able to make optimal decisions.

Multi-criteria analysis, or multi-attribute decision making, as this set of methods is sometimes called in theory, relate to the problems of decision making in situations when there is often a number of conflicted criteria. This kind of problems is often and usual, as much in everyday life, so is in the area of business decision making and important government issues like development strategies, defense strategies, budget planning, etc.

On a small scale, purchase of household appliances would be a decision made by considering multiple different criteria: price, technical characteristics, reliability and durability, size, payment method, service network, etc. In a business context, there are a lot of problems that are subjects of multi-criteria analysis.

The development of multi-criteria analysis as a scientific discipline is closely related to the development of computer technology. On the one hand, the rapid development of computer technology in recent years makes possible a systematic analysis of complex problems of multi-criteria analysis. On the other hand, the widespread use of computing and information technology has generated a large amount of data, making multi-criteria decision-making models very important and useful support to the business decision-making process.

There are many studies on multi-criteria decision-making (MCDM) solutions and techniques. The detailed overview of multi-criteria decision-making techniques and their application was presented in (Mardani, et al., 2015), where 393 articles published from 2000 to 2014 in more than 120 peer-reviewed journals were reviewed and summarized. According to the information presented in (Mardani, et al., 2015), in 2013, scholars have published more articles than in other years. Additionally, the analytic hierarchy process (AHP) method as an individual tool and hybrid MCDM as an integrated method were ranked as the first and second best methods to be used. In (Huang, Shen, Doshi, Thomas, & Duong, 2016), a fuzzy set based on the team decision-making intended for cyber situation awareness increase was proposed. Namely, assuming that the human cyber analysts use the ambiguous linguistics to express their cyber situation awareness during the team collaboration, the authors proposed a fuzzy-based method that allows cyber analysts to quantify their preference and achieve the consensus on the cyber attack types that are most acceptable by all team members. Furthermore, in order to facilitate the collaboration among the cyber analysts' team across the large distances, the authors used a fuzzy-based CSA decision-making system to demonstrate how their approach provides support for generating team CSA in a distributed manner with the capability of handling the uncertain information. In (Shalaginov, Johnsen, &Franke, 2017), it was profoundly explained that Big Data is becoming a challenge in dealing with cyber-enabled and cyber-dependent crimes. Moreover, it was stated that traditional investigative and analysis tools have become less efficient because reduced capability to provide necessary results timely and within the resource constraints. The authors claimed that a promising solution to this issue related to the cybercrime is to use the advanced data analytics tools to help to prevent the cybercrime. Moreover, the significance of a proper detection of cybercrime was explained in detail in (Huang, Shen, Doshi, Thomas, & Duong, 2016), where many methods and solutions for solving the most common cybercrime issues were introduced. The cybersecurity problem regarding the illegal benefit achieved by the spreading spam mail was pointed out in (Wijayanto & A. W. & T., 2014). Namely, the spam denotes all irrelevant or inappropriate messages sent via the Internet to a large-number group of recipients. Authors stated that although there are numerous classification methods based on the machine learning that can be used to filter the spam messages, an additional research is still needed to evaluate the use of a clustering task in the data mining to perform the spam segmentation, so they proposed a fuzzy clustering approach to classify the spam e-mails using one of the most popular and efficient methods in fuzzy logic field, the Fuzzy C-Means. Hence, it can be concluded that multi-criteria decision-making is very important in fighting the cybercrime. Therefore, the paper presents a novel multi-criteria decision-making method written in Python programming language based on the AHP and ELECTRE methods. According to the authors' knowledge, this is the first method of that type.

The rest of the paper is organized as follows. The section named **Multi-criteria decision making** explains the basic concepts of multi-criteria decision-making. In the section named **AHP and ELECTRE**, two methods of multi-criteria decision-making are described, which are used as a mathematical basis of a concrete program solution, as well as the reasons why they are used. Then, in the section named **Python**, it is explained why Python programming language is selected for the computer implementation of a specific tool as well as its advantages over other programming languages. The **AHPELECTRE Software** section presents a specific tool, providing the user process description. Finally, a brief conclusion is given in the **Conclusion.**

MULTI-CRITERIA DECISION MAKING

The methods of the multi-criteria analysis are directed to solving the problem of choosing one of the series m of the matrix A_i (i = 1, 2, ...,m) based on n the criterion X_j (j = 1, 2, ..., n). Each of the alternatives is vector $A_i = (x_{i1}, x_{i2}, ...,x_{ij}, ..., x_{in})$, where x_{ij} is the value of the jth of the attribute for the ith alternative. The usual way of presenting the problem of the multi-criteria analysis is the matrix form presented in Figure 1.

$$\begin{array}{c} \\ A_1 \\ A_2 \\ . \\ . \\ A_m \end{array} \begin{array}{c} \begin{array}{cccccc} X_1 & X_2 & . & . & X_n \end{array} \\ \begin{bmatrix} x_{11} & x_{12} & . & . & x_{1n} \\ x_{21} & x_{22} & . & . & x_{2n} \\ . & . & . & . & . \\ . & . & . & . & . \\ x_{m1} & x_{m2} & . & . & x_{mn} \end{bmatrix} \end{array}$$

Figure 1 *Matrix form presentation of the multi-criteria problem*

The formation of a multi-criteria analysis model implies the existence of relevant knowledge about possible alternatives for the realization of the process for which the decision is made, the objectives that the decision-maker wants to achieve, as well as the data on how each of the available alternatives contributes to achieving a particular goal.

Alternatives in the model form a set with the final number of elements that need to be tested, evaluated, set priorities, and finally make a selection, or ranking. Essentially, the alternative is the possible way of acting of the decision-maker, and depending on the problem, synonyms for the "alternatives" might include, among other things, "option", "action", "strategy", "policy", "candidate" etc.

The criteria in the model are represented by an appropriate function, and their significance is expressed by the corresponding weight coefficient. Depending on the type of the extreme value of the function of criteria that is in accordance with the interests of the decision-maker, we distinguish two types of criteria. The first group consists of the criteria where the interest of a decision-maker is to achieve the maximum value of the criterion function, such as maximizing profit, revenue, efficiency, etc. The second group consists of criteria where the interest of the decision-maker is to achieve the minimum value of the function of the criterion, such as the minimization of costs, prices, expenditures, etc. The importance that the criteria will have in the model directly depends on the preference of the decision maker or the weight coefficient that the decision-maker will assign to a particular criterion.

There is some kind of imprecision in defining the concept of attributes in relation to the notion of criteria, both in domestic and foreign literature. All authors agree that the attributes are attributes, quality or characteristics of the alternative according to the criterion observed. As it represents the level of achievement of the criteria, it may be believed that the "attribute" is synonymous with the "criterion". At the level of the alternative, that is exactly what it is. However, at the level of the whole problem, where there are m alternatives and n criteria, the term attribute is used in terms of the characteristics of the alternative for each of the criteria, and each criterion is defined with m different attributes representing the degree of success of the alternative for the observed criterion. So, if we look at the matrix form that defines the

problem of multi-criteria analysis, the attribute is the coefficient x_{ij} and not the criterion X_j. In this context, the synonyms "attribute" would be "parameter", "performance", "component", "factor", etc.

Solution to the problem of multi-criteria analysis does not have to be unique. Therefore, depending on the nature of the problem and the method used to solve it, we distinguish several types of solutions to the problem of multi-criteria analysis (categorization of solutions according to). *The ideal solution* is the theoretical category that represents the solution with the best possible attribute values for all criteria. This is the solution where the attributes have the maximum possible value for the revenue and minimum possible value for the cost type criteria. As a rule, such a solution is extremely rare, and its significance is that by solving the problem of multi-criteria analysis, it is actually aimed at such a solution. An *undated solution* represents an alternative that is not dominated by another alternative. We say that the algorithm is dominated when there is another alternative that at least one of its attributes is better than the one observed. So, the non-nominated solution is such an alternative that at least one criterion is better compared to all possible alternatives, while at least another criterion at least equals good. A *satisfactory solution* is a set of possible alternatives, such that they achieve a certain degree of satisfaction of criteria that are considered desirable. A satisfactory solution does not have to be an unspecified solution at the same time. Whether the solution is satisfactory depends solely on the level of expectation of the decision-maker. A *preferred* or *optimal solution* is an unmodified solution that largely meets the expectations of the decision-maker.

AHP AND ELECTRE

As one of the standard methods for multi-criteria analysis, AHP represents a way of presenting qualitative characteristics of the quantitative factors. When making decisions through a computer, most solutions require that the weight or significance of each of the criteria is defined in numerous forms and it is often difficult to determine this difficulty independently because direct measurement or evaluation of their values can be a major problem in the decision-making process. This is supported by the fact that such values are very sensitive to changes and as such are not precise. In addition, for psychological reasons, the decision-maker cannot compare a number of alternatives at the same time. For such needs, decision-makers are forced to use different technologies to make the right decision, often losing precious time. In such situations, the use of the AHP method is necessary, due to the fact that computers are the most powerful tool in situations where they work with concrete, quantitative data. Therefore, in order to make a good decision, it is necessary for the computer to provide the characteristics of all factors in numerous forms. Since it is easier for people to describe a characteristic of the performance descriptively, the AHP was chosen for the reason of its methodology based on the mutual comparison of factors by couples and the presentation of these relationships in a form suitable for further computer analysis, numerical form. For processing these data and calculating the most optimal solution, based on already known weight coefficients of each of the criteria determined by the aforementioned AHP method, the ELECTRE method was used. The ELECTRE method is used because it represents the standard of multi-criteria decision-making, which is relatively easy and intuitive for implanting in a programmer's sense since it is based on working with matrices that are relatively simple in programming, representing the two-dimensional strings that form the basis.

AHP

Analytical hierarchical processes (AHP), as one of the methods for multi-criteria optimization, represent a mean for choosing an alternative among the certain number of them, especially in the cases where there are several criteria on which a decision should be made. The method originated from the 1970s, and it was proposed by Thomas Saaty. In addition to the basic method developed by Saaty, it should be noted that there are several variants of the AHP method today, among which the most commonly used is the Revised AHP method, which overcomes the shortcomings of the original AHA algorithm.

The essence of the AHP method can be described as a structure of a complex decision problem that can contain multiple criteria, multiple alternatives, as well as a greater number of decision-makers (group decision-making) at several levels, determining the weight coefficients of the criteria and alternatives by levels and this way to form the final order of the alternative. The modeling process can be divided into four phases:

- Structuring the problem
- Data collection
- Determination of relative weights
- Determining the solution

Table 1 *Nine point scale for pairwise comparisons in AHP*

Intensity of	Definition	Explanation
1	Equal importance	Two criteria/sub-criteria contribute equally to the level above
3	Moderate importance	Judgment slightly favors on criterion/sub-criterion over another
5	Essential or strong importance	Judgment strongly favors on criterion/ sub-criterion over another
7	Very strong importance	A factor is strongly favored and its dominance demonstrated in practice
9	Extreme importance	The evidence of favoring one factor over another is of the highest possible order of affirmation
2,5,6,8	Immediate values between above scale values	Absolute judgment cannot be given and a compromise is required

In the first phase, we consider the problem as a single hierarchy, where the goal of the problem is on the top, while at the lower levels the attributes based on which the decision is made are treated. At the lowest hierarchical levels, there are a number of alternatives from which the best choice is actually made, i.e. *m* alternatives that are used in the comparisons.

Besides data collection, the second phase also implies their mutual evaluation. First of all, there is a comparison of pairs of every two attributes at a given level of the hierarchy and in relation to the attribute directly at the higher level. The comparison of pairs is performed

by determining which of two observed attributes is better or more significant in relation to the given criterion and how much. The preference strength is expressed on a scale 1-9. The preferential level 1 shows the equality of the observed attributes, while level 9 denotes the absolute, strongest preference of one attribute relative to the other. This scale was formed by Saaty and is used both in the essential AHP method and in all of its later developed variants because it allows comparisons in a limited range where the perception is sufficiently sensitive to make a difference.

The estimation of relative weights involve determining the mutual, relative importance of criteria, as criteria for comparing alternatives by validity, as well as determining the mutual relation of alternatives with respect to each of the criteria to achieve the defined goal.

Determining the solution to the problem is the decision of the decision-maker to be one of the possible solutions, certainly, the one that is most favorable in the given conditions.

Namely, the decision-maker allocates weight to each pair separately, as much as one pair of attributes is more important than the other. If it has objective data, it can use them to assign weight. Otherwise it uses its own estimates and information. As a result, an appropriate matching matrix is obtained by pairs corresponding to each level of the hierarchy.

ELECTRE

ELECTRE method is one of the multi-attribute methods for decision-making, which was proposed in Europe in the mid-1960s. The acronym ELECTRE stands for ELimination and ET Choice Translating REality. The method was first proposed by Bernard Roy and his colleagues at the consulting company SEMA. The original variant of the method, ELECTRE I, determines the partial order of the alternative. In the late 1960s, a new variant, ELECTRE II, was developed to solve problems in the field of media planning and advertising, which completely regulates a set of alternatives. The first modification of the method included using the fuzzy data but there was a problem of the construction of the highway in the Ile de France region. Later, the method was modified to introduce the use of pseudo-criteria and fuzzy binary relations and created its version of ELECTRE III. The ELECTRE I method itself consists of several steps. First, the normalized matrix is calculated and then the weighted normalized matrix is calculated. The decision-maker actively participates in the problem solving process by the fact that it determines the weight of the criteria after which this matrix is calculated. After that, the determination of the consent and non-compliance sets is carried out on the basis of which the matrices of consent and non-compliance are calculated in the next steps. Thereafter, it follows the calculation of consensus domination and inconsistent domination. After that, it follows the determination of the matrix of aggregate domination and finally the elimination of less desirable alternatives and decision-making.

PYTHON

Python programming language is selected for the program implementation of the proposed solution. Python is chosen for the reason that the programmer can be significantly more productive in Python than in other programming languages. Programming languages are tools and different tools are appropriate for different jobs. Our toolboxes should contain both Python and Java, so that in any given situation we have the option of choosing the best tool for the job. In addition, Python offers a stepping stone into the world of programming. Even though Python Programming Language has been around for 25 years, it is still rising in

popularity. Some of the biggest advantages of Python are that it is easy to read and learn very productive or small, as well as big projects and big libraries for many things.

Therefore, as a general purpose programming language, Python can be used for multiple things. Python can be easily used for small, large, online and offline projects. The best options for utilizing Python are web development, simple scripting, and data analysis. Below are a few examples of what Python is commonly used for:

Web Development: Python can be used to create the web applications of various levels of complexity. There are many excellent Python web frameworks such as Pyramid, Django and Flask.

Data Analysis: Python is the leading language for many data scientists. Python has grown in popularity, within this field, due to its excellent libraries including; NumPy and Pandas and its superb libraries for data visualization like Matplotlib and Seaborn.

Machine Learning: What if you could predict customer satisfaction or analyze what factors will affect household pricing or to predict stocks over the next few days, based on previous years data? There are many libraries implementing machine learning algorithms such as Scikit-Learn, NLTK and Tensor Flow.

Computer Vision: Many interesting things such as Face detection, Color detection can be developed by using Opencv and Python.

Internet Of Things With Raspberry Pi: Raspberry Pi is a very tiny and affordable computer which was developed for education and has gained enormous popularity among hobbyists with do-it-yourself hardware and automation. You can even build a robot and automate your entire home. Raspberry Pi can be used as the brain for your robot in order to perform various actions and/or react to the environment. The coding on a Raspberry Pi can be performed using Python.

Game Development: Create a video game using module Pygame. Basically, you use Python to write the logic of the game. PyGame applications can run on Android devices.

Web Scraping: If some data from a website is needed but the site does not have an API to expose data, Python is used for scraping data.

Writing Scripts: Manually-done things which are automate repetitive stuffs, such as e-mails, can be easily automated.

Browser Automation: Performing neat things such as opening a browser and posting a Facebook status, you can do it with Selenium with Python.

GUI Development: Building a GUI application (desktop app) using Python modules Tkinter, PyQt to support it.

Rapid Prototyping: Python has libraries for everything which can be used to quickly build lower-performance and less-powerful things. Python is also great for validating ideas or products for established companies and start-ups alike.

Therefore, Python can be used in many different fields. Besides, Python is a dynamic, strongly typed, object-oriented, multipurpose programming language, designed to be quick (to learn, to use, and to understand) and to enforce a clean and uniform syntax.

1. Python is **dynamically** typed. It means that there is no need to declare a type (e.g. 'integer') for a variable name and then assign something of that type. Instead, you have variable names and you bind them to entities whose type stays with the entity itself. For instance a = 5 makes the variable a to refer to the integer 5. Later, a ="hello" makes the variable name a to refer to a string containing "hello". The static-typed languages would need you to declare *inta* and then a = 5, but assigning a ="hello" would lead to a compile time error. On the one hand,

this makes everything more unpredictable because it cannot be known what variable refers to. On the other hand, it makes it very easy to achieve some results, while a statically typed language makes it very difficult.

2. Python is **strongly typed**. It means that if *a* =”5” (the string whose value is ‘5’) will remain a string and never coerced to a number if the context requires so. Every type of conversion in Python must be done explicitly. This is different from, e.g. Perl or Java script, where you have weak typing and can write things like “hello”+5 to get “hello5”.

3. Python is **object oriented**, with class-based inheritance. Everything is an object (including classes, functions, modules, etc.), in the sense that they can be passed around as arguments, have methods and attributes, and so on.

4. Python is **multipurpose**. It is not specialized for a specific target of users (like R for statistics, or PHP for web programming). It is extended through modules and libraries that hook very easily into the C programming language.

5. Python enforces correct **indentation** of the code by making the indentation part of the syntax. There are no control brackets in Python. Blocks of code are identified by the level of indentation. Although many programmers are not used to this, it is precious as it gives a very uniform style and results in code that is visually pleasant to read.

6. The code is compiled into **byte code** and then executed in a virtual machine. This means that precompiled code is portable between platforms.

7. Python can be used for any programming task, from GUI programming to web programming with everything else in between. It is quite efficient, as much of its activity is done at the C level. Python is just a layer on top of C. There are libraries for everything you can think of: game programming and open GL, GUI interfaces, web frameworks, semantic web, scientific computing, etc.

AHPELECTRE SOFTWARE

The application we propose is presented below. Namely, when the application is started, the user is asked to state how many actions and criteria the decision that he wants to make have, Figure 2(a). If he does not enter the required data and tries to continue, the application will return the error on the screen Figure 2(b) and wait for a re-entry, Figure 3. When the user enters the data, the application will go to the next step.

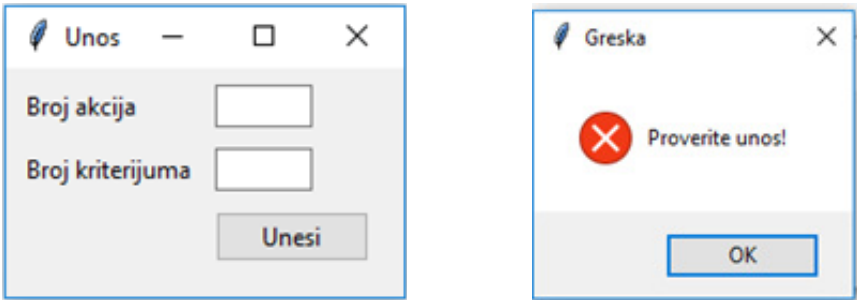


Figure 2 *Screenshot of the software home screen (a) and alert in case of an input error (b)*

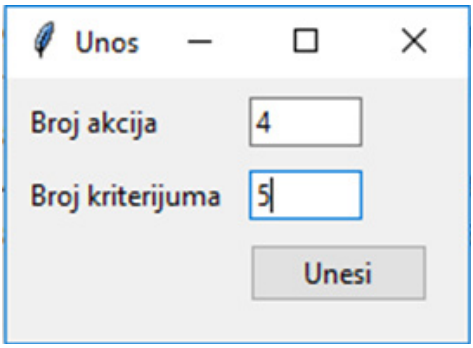


Figure 3 *An example of a proper input of required parameters*

The next step is determining the weight for each of the given criteria. Weights are determined using the AHP method, i.e. they are determined in a way where each criterion is compared with each one in a way that the comparisons are consistent, Figure4.

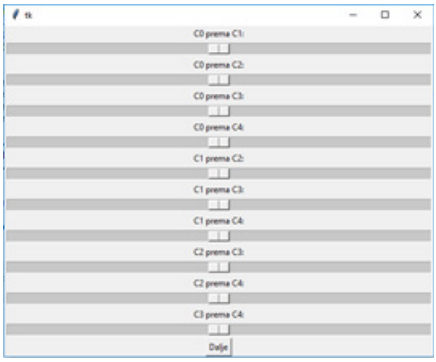


Figure 4 *Screenshot of GUI module for criteria comparing*

To make the weight input to be valid, it is necessary to count the consistent of the weights to be entered and in the case that the consistent is greater than 0.1, there would be an error ,Figure 5 and it would be necessary to inform the user and ask him to re-enter the weight relation.

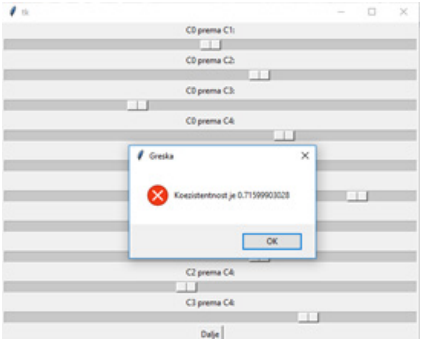


Figure 5 *Alert in case that criteria comparison was incorrect*

To make data consistent, it is important to have a logical trace, so that if C0 is more important than C2 and less important than C4, C2 is not more important than C4. If C4> C0> C2, then C4 <C2 is not possible or not consistent. It would also be good to implement it in a way that it graphically forbids the user to enter such values. As shown in Figure 6, below each of the columns, the weight for the given criterion and the column should be printed.



Figure 6 *Screenshot of generated matrix*

In addition to the values for each of the criteria, the user also enters whether the particular criteria should be minimized. Namely, in that case, the field above the column or criteria should be checked, Figure 7.

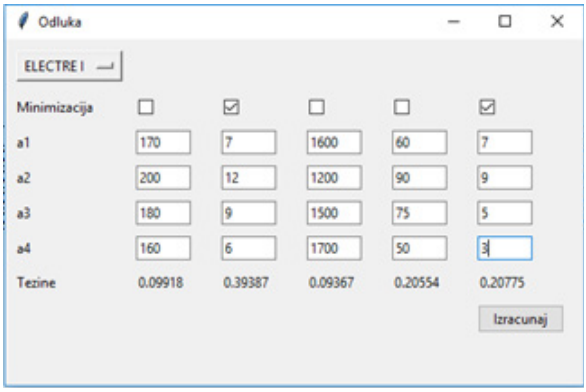


Figure 7 *Entering values of every criterion for alternatives and marking checkbox in the case the minimization is wanted*

When the user has entered the values for all of the criteria and chosen which criteria are minimized and which method will be used, then the user has to click on the calculation button to get the best solution proposal, i.e. the best three solutions.

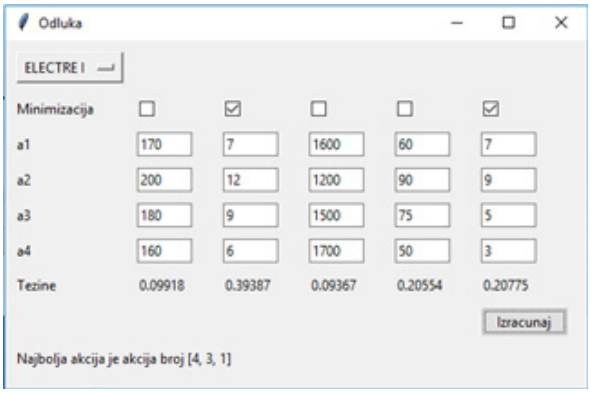


Figure 8 *The calculated solutions where the first alternative i n the list denotes the optimal solution*

If the user does not enter all the criteria values, he will be informed, so there will be an error while the application is running, Figure 9.

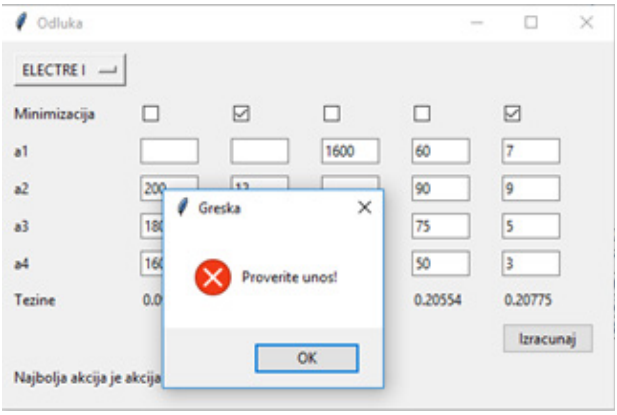


Figure 9 *Alert in the case that input was incorrect*

All graphics in the application are made using the **tkinter** graphic library. This graphic library was chosen because it is a standard library for GUI programming in Python and it is the best covered library by documentation and because it comes along with the basic package when Python is installed. Importing **ttk** and message box modules is required because they are not a part of the default modules.

CONCLUSION

In this paper, the importance of multi-criteria decision-making in the contemporary fight against crime is explained and a software solution for multi-criteria decision-making is introduced. The mathematical basis of the software consists of the multi-criteria methods AHP and ELECTRE, where the AHP method is used to determine the criteria weights, while ELECTRE method is used as one of the standard methods for multi-criteria analysis. The software is writ-

ten in Python programming language due to its simplicity to be learn and its large number of libraries and a good developers' community. Why did we want to make such a tool instead of buying it? Because it does not exist, so it cannot be bought and if it could be, it is very expensive and we do not have an insight into how it really works, and the question is whether it can be customized in order to be adapted to specific needs. Additionally, it is not good to have a lot of outsourcing in the security system because it is impossible to know with certainty where the security gaps of the purchased tool are. Furthermore, a tool making process in the same sector encourages the creativity of people working in the sector and it strengthens the interpersonal relations in the collective through teamwork on such a project as well.

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COMPREHENSIVE FORENSIC EXAMINATION WITH BELKASOFT EVIDENCE CENTER

Brankica Popović, PhD[1]
Kristijan Kuk, PhD
University of Criminal Investigation and Police Studies, Belgrade

Ana Kovačević
Faculty of Security Studies, University of Belgrade, Serbia

Abstract: The enhancement and proliferation of information and communication technology (ICT) has tackled every aspect of human activity: work, leisure, sport, communication, medicine, etc. All around us we can see mobile phones and other connected devices that are now ubiquitous, changing trends in consumer behaviour. Therefore, there is no surprise in fact that such technologies can play a significant role in committing or assisting a crime, since data held on digital devices can give a detailed insight into people's lives, communications, contacts, friends, family and acquaintances. In order to help law enforcement investigation of such crimes, digital forensic is performed with the aim of collecting crime-related evidence from various digital media and analyse it. Investigators use various forensic techniques to search hidden folders, retrieve deleted data, decrypt the data or restore damaged files, etc. Obtaining evidence such as location data, photos, messages or internet searches can be beneficial, if not crucial, in assisting the police with criminal investigations. Since advances in technologies have led to an increase in the volume, variety, velocity, and veracity of data available for digital forensic analysis, without efficient techniques and tools such investigation would require a tremendous amount of effort and time. That is the reason for expansion in the market of digital forensic tools, both proprietary and free for use, that are available today. In this paper an insight of digital forensic process is given, emphasizing the role of digital forensic tools in providing digital evidence. The possibility of one particular tool, Belkasoft Evidence Center – BEC, in acquisition and analysis of digital evidence was briefly described.

Keywords: cybercrime**,** digital evidence, digital forensic tools, memory forensic tools

INTRODUCTION

Modern societies are increasingly dependent on electronic networks and information systems. The evolution and proliferation of information-communication technology (ICT) and rapid integration of the Internet in almost all aspects of human activity, although having large beneficial effect, have also increased vulnerability of modern society through introduction of

1 Corresponding author mail: brankica.popovic@kpa.edu.rs

novel types of criminal activity – cybercrime. Many Internet dependent services are frequent targets of cyber-attacks making a cybercrime often a part of our real life experience.

Since majority of information is created, modified and consumed entirely in digital form,[2] it is of most importance for any investigation to be able to get access to them in order to perform analysis and provide digital evidence to the court. Considering the amount of data that have to be processed, it is clear that some automatic tools have to be used in order to provide information (digital evidence) in efficient and timely manner.

Today we have a variety of available tools that can be used in process of gathering (acquisition and analysis) of digital evidence, both proprietary and free for use. There is not a single tool that can serve for all purposes, but there are some solutions and integrated tools that can make the difference in digital investigation process, and which are recognized by the expert (both forensic and legal) as efficient and trustworthy. Among them there is the solution provided by Belkasoft, named Belkasoft Evidence Center (BEC).

The aim of this is paper is to describe the possibilities of automatic forensic tools that can be used to facilitate cybercrime investigation, with focus on Belkasoft tool – BEC. The paper is organized as follows: in the first section there is a brief introduction to the concept of cybercrime, digital evidence and digital forensic; in the second section a role of digital forensic in fighting cybercrime is briefly explained, followed by the section stating the most popular digital forensic tools. The fourth section is dedicated to the explanation of possibilities that BEC can provide in digital forensic process. Finally, after the brief conclusion the list of used references is provided at the end of the paper.

BASIC FACTS ABOUT CYBERCRIME, DIGITAL EVIDENCE AND DIGITAL FORENSIC PROCESS

What is cybercrime?

Cybercrime, alternatively referred to as computer crime, e-crime, electronic crime, or high-tech crime was firstly considered as a crime that involves a computer and networks, where computer may be the target or the tool for committing a crime. In the preamble of the Convention on Cybercrime[3] of the Council of Europe, cybercrime is defined as "activities that are directed against the integrity, confidentiality and availability of computer systems and data networks, as well as any misuse of these system, networks and computer data" (CETS 185, 2001).

Later in 2007, the EU Commission's communication defined cybercrime as: "criminal acts committed using electronic communications networks and information systems or against such networks and systems" (COM/2007/0267 final, 2007). In this definition two broad categories of crime are covered:

1. Crimes specific to the Internet, such as attacks against information systems, denial of service and hacking;[4] and

2. 'Internet facilitated' crimes (or computer assisted crimes) – crimes where computers are used in an online environment as tools to commit more traditional crimes (e.g. online fraud and forgery,[5] the dissemination of illegal content such as child sexual abuse

2 Some activities such as chats and social networking are even unimaginable outside the virtual space
3 Also known as the "Budapest Convention"
4 Can also be directed against the crucial critical infrastructures
5 Through instruments such as identity theft, phishing, spam and malicious code

material, incitement to racial hatred, incitement to terrorist acts and glorification of violence, terrorism, racism and xenophobia).[6]

What is digital evidence and digital forensics?

With the digital revolution and expansion of electronic devices daily usage in almost all aspects of life it became clear that digital data found within them (especially within ones with electronic storage capacity) can supply vital evidence to investigators. That is the reason why in the Version 5 of the Association of Chief Police Officers (ACPO) Good Practice Guide for Digital Evidence (ACPO, 2012) term 'computer based evidence' was replaced with 'digital evidence', reflecting the development of investigating information security incidents in a wider context. Today terms 'digital evidence' and 'electronic evidence' are used as synonyms referring to 'various types of data in electronic form that are relevant in investigating and prosecuting criminal offences - including 'content data' such as e-mails, text messages, photographs and videos - often stored on the servers of online service providers, as well as other categories of data, such as subscriber data or traffic information regarding an online account. These types of data are often essential in criminal investigations to identify a person or to obtain information about their activities' (MEMO/18/3345, 2015). We can say that digital evidence is now present or potentially present in almost every crime.

Digital evidence, like any other evidence, must be: admissible, authentic, accurate, complete and convincing to juries. Yet, digital evidence differs from other evidence in a way that it might be invisible to the untrained eye[7] and can easily be altered during evidence collection. Therefore, in order to be admissible in a court of law, it must be handled with a proper care meaning that seizure, custody, control, transfer, analysis and disposition of the evidence must be chronologically documented in a proper way constituting a 'Chain of custody' (CoC).

Digital evidence is highly volatile so an imperative is to preserve it as soon as possible. Since it may be altered or destroyed through normal use, an appropriate technique must be used from the very moment of identification the evidence as relevant for an investigation. Therefore it requires special tools and equipment, as well as specialized training and expert testimony.

Digital evidence is provided by recovering and analysing data and material obtained from electronic devices and cloud-based services, in the process also known as digital forensics. Digital Forensics is the branch of forensic science that focuses on identifying, acquiring, preserving, processing, analysing and reporting of digital evidence. It relies on scientific methods that are demonstrably reliable, accurate, and repeatable so that they may be used in judicial proceedings. In other words, Digital Forensics can be seen as the application of digital investigation and analysis techniques in order to perform a structured examination of a digital storage medium, while maintaining a documented chain of evidence, for the purpose of gathering information admissible in evidence in a court of law or in a disciplinary procedure. The objective of digital forensics is to follow the standardised investigation process while documenting any evidence that is stored digitally which may indicate to the person responsible for the crime. Therefore, forensic methodology can be described through the three A's: *Acquire* (do not alter or damage the original); *Authenticate* (proof that your recovered evidence is the same as the original); *Analyse* (inspect evidence without altering it).

A major challenge to digital forensic analysis is the ongoing growth in the volume of data seized and presented for analysis. This is a result of the continuing development of storage technology, including increased storage capacity in consumer devices and cloud storage services, and an increase in the number of devices seized per case. Consequently, this has led to

6 More on https://ec.europa.eu/home-affairs/what-we-do/policies/organized-crime-and-human-trafficking/cybercrime_en

7 Often retrieved from places known or accessible only to experts

increasing backlogs of evidence awaiting analysis, often many months to years, affecting even the largest digital forensic laboratories (Quick & Choo, 2014).

ROLE OF DIGITAL FORENSICS IN FIGHTING CYBERCRIME

When we talk about Cybersecurity we are considering it as "a very wide-ranging term that covers all aspects of the protection of citizens, businesses and critical infrastructures from threats that arise from their use of computers and the Internet" (Sommerwille, 2016). Cybersecurity incidents are diversifying both in terms of who is responsible and what they seek to achieve. Today, the border between cybercrime and 'traditional' crime is blurring as criminals use the internet both as a way to scale up their activities, and also as a source to find new methods and tools to commit crime. Yet, as stated in Joint Communication to the European Parliament and the Council from 2017, "in the vast majority of cases, the chances of tracing the criminal are minimal, and the chances of prosecution smaller still" (JOIN/2017/0450 final, 2017). Although effective investigation and prosecution of cybercrime is considered as a key deterrent to cyber-attacks, finding useful information for cybercrime investigations, mostly in the form of digital traces, is still a major challenge for law enforcement authorities.

In order to strengthen the law enforcement response to cybercrime in the EU, in 2013 the European Cybercrime Centre (EC3) was established by Europol, with the aim of helping protect European citizens, businesses and governments from online crime. Each year, EC3 publishes the Internet Organised Crime Threat Assessment (IOCTA), as the strategic report on key findings and emerging threats and developments in cybercrime. It also provides key recommendations for fighting cybercrime in an effective and concerted manner (to law enforcement, policy makers and regulators).

Together with strategy and operations, forensics is considered as one of the three pillar in EC3 approach to the fight against cybercrime, as shown in Figure 1.



Figure 1. EC3 three-pronged approach to the fight against cybercrime[8]

8 Source: https://www.europol.europa.eu/about-europol/european-cybercrime-centre-ec3

Trained and skilled individuals (Digital/**Computer Forensic Experts)** work not only for public law enforcement but also in the private sector in order to carry out tasks related to the collection and analysis of digital evidence. They are responsible for the identification, acquisition, authentication, preservation, analysis, and presentation of evidence for prosecution purposes (INFOSEC Institute, 2018). They are also faced, among other problems, with rapidly changing computer technology, encrypted files and volumes and a large number of anti-forensics tools, which all requires more time and money for the investigating organisation (Irons & Lallie, 2014).

Digital forensics can be performed as:

- Traditional Forensics - when target system is turned off (static analysis);
- Live Forensics - when target system is in working mode (Often Incident Response).

Traditional approach includes generating forensic image (bit-by-bit copy) of targeted device hard disk after device is switched off. Then, a detailed investigation (collection and analysis of digital evidence) is performed. Although widely adopted mainly because it guaranties no (or there is a slim chance for) modification of disk data, the main drawback of this approach is evidential loss of so-called 'live' data - information whose existence in volatile memory depends on power.

Therefore today it is obligation for every digital forensic analyst to use methodology which advocates extracting 'live' system data before system is shut down in order to preserve memory, process, and network information that would be lost with traditional forensic approach. Examination of the volatile memory, i.e. performing Memory Forensics is a must and therefore making a RAM dump becomes a standard operating procedure when acquiring digital evidence before switching the system off and taking the hard drive out. It is essential to realize that acquiring volatile memory will inevitably leave acquisition footprint. This process may be acceptable to the law enforcement officer performing the acquisition, but in order to make evidence acceptable to the court the entire acquisition process must be carefully documented. Currently, most court systems are ready to recognize the fact that certain footprint is introduced by law enforcement during the acquisition process (Afonin & Gubanov, 2013).

The official ACPO Guidelines (ACPO, 2012) recommend the following standard procedure for capturing a memory dump:

- Perform a risk assessment of the situation: is it evidentially required and safe to perform volatile data capture?
- If so, install volatile data capture device to a removable data carrier (such as a USB stick) – preferably, this has already been done prior to starting the operation;
- Plug the data carrier into the machine and start the volatile data collection script;
- Once complete, stop the device (particularly important for USB devices which if removed before proper shutdown can lose information);
- Remove the device;
- Verify the data output on a separate forensic investigation machine (not the suspect system);
- Immediately follow with standard power-off procedure.

The European agency ENISA has also provided a guide for first responders in the area of gathering the evidence related to a cybercrime, with the aim of providing guidance for Computer Emergency Response Teams (CERTs) on how to deal with evidence and evidence gathering process. It emphasized that CERT first responders have different priorities than law enforcement, as the primary function of a CERT is normally to ensure that the provision of

the service is returned or maintained. Evidence collection is usually only secondary to them, unlike for law enforcement where the sound evidence collection is typically of highest priority (ENISA & Anderson, 2015).

There is another distinction in analyses process, whether examination should be carried on:

- Physical media that holds binary data or
- Logical representation.

Depending on the case, the examination and analysis can be performed on raw data (physical analysis), or on data as they are arranged and saved by the operating system (logical) (Casey, 2004).

In order to help experts in performing digital forensics, a number of proprietary and free tools are available today, performing single action or in the form of integrated complete solution performing all steps in digital investigation from acquisition and analysis of digital evidence to the creation of report that will be submitted to the court.

DIGITAL FORENSIC TOOLS

Rapid evolution of digital evidence sources requires constant improvement in forensic techniques and procedures. The amount of collected data requires appropriate tools in order to make investigation of cybercrime efficient and useful. Use of proper procedures, techniques and tools is essential for digital forensic process.

Each forensic investigation must be traceable and repeatable by other forensic specialists with the same final conclusion. Compared to physical evidence, digital evidence requires different training and tools which both must follow technological advances. In some cases tools and examination techniques from few years ago are insufficient and incompatible with current technology and their use consequently increases the risk of missing critical information or otherwise jeopardizing an investigation. Using the most up to date tools can help mitigate challenges to the acceptability of results of digital evidence analysis in court.

As digital devices (e.g., computers, mobile phones, and GPS devices) become ubiquitous, the analysis of digital evidence is becoming increasingly important to the investigation and prosecution of crimes as it can reveal information about movement of suspects and criminal associates. But, without the right tools (designed to facilitate, among others, temporal, spatial and network analysis of volume of digital evidence) those complex data sets could remain useless for investigators. Examining millions of pieces of low level data in order to extract high-level information is a time consuming and exhausting work, requiring some automatic methods. Also, triage tools are seen as effective means of getting useful information early without waiting for in depth analysis of the entire target system (Soltani & Seno, 2017).

Digital forensic tools and techniques allow collection of evidence from various digital devices, even one that is difficult to get such as destroyed, locked, or obfuscated data. On the other side, criminals are adopting new rules by making attempts to counter forensic efforts. Some of the actions they perform include: wiping data, deleting files, faking or clearing logs, histories and other traces of performed activities, encrypting the entire volume, etc. These measures, performed in order to hide traces of activity, are called anti forensics (Gubanov, 2012).

A variety of digital forensic tools exist today. Some of them are made for acquisition of volatile data before a suspect system is shut down (capture the live memory - memory dump

tools) like: FTK (Forensic Tool Kit) Imager,[9] Madiant Memoryze,[10] DumpIt,[11] OSForensics,[12] CaptureGUARD,[13] Belkasoft Live RAM Caputer,[14] etc.

There are some outstanding tools that can be used for the acquisition and analysis process (for compute) such as: Volatility,[15] EnCase,[16] Autopsy,[17] Forensic Toolkit (FTK®),[18] CAINE,[19] SANS Investigative Forensics Toolkit–SIFT,[20] **Cellebrite UFED**[21] **and** Belkasoft Evidence Center.

In order to find tools that meet one's specific technical needs, forensic practitioners can use easily searchable catalogue of forensic tools provided by NIST - Computer Forensics Tool Catalog.[22]

In the next section we will briefly describe the possibilities of Belkasoft products in digital forensic process.

DIGITAL FORENSICS WITH BELKASOFT EVIDENCE CENTER

Belkasoft Evidence Center (BEC)[23]is an all-in-one forensic solution for acquiring, locating, extracting, searching, analysing, storing and sharing digital evidence stored inside mobile and computers devices, RAM and cloud. It can extract digital evidence from multiple sources where the most forensically important artefacts are selected for investigator to review, examine more closely and add to report. The tool looks out at hidden locations and for encrypted information for detailed investigation, and carves out damaged or deleted files.

It is well known and wide used in law enforcement agencies, outperforming in real life investigation some of the most known tools such as EnCase (Antyasov & Ufimtcev, 2016; Filipić & Protrka, 2016; Umar et. al., 2017).

BEC can perform the following tasks:

9 Free Access Data tool that can acquire live memory and paging file on 32bit and 64bit systems. More on https://accessdata.com/product-download
10 Free memory forensic software that helps investigators find digital traces in live memory. Memoryze can acquire and/or analyze memory images and on live systems can include the paging file in its analysis. More on https://www.fireeye.com/services/freeware/memoryze.html
11 Generate a physical memory dump of Windows machines. Can be deployed as executable on USB keys, for quick incident responses needs. More on: https://zeltser.com/memory-acquisition-with-dumpit-for-dfir-2/
12 More on: https://www.osforensics.com/osforensics.html
13 Physical Memory Acquisition Hardware which can be used with WindowsSCOPE Cyber Forensics. More on: http://www.windowsscope.com/products/
14 More on: https://belkasoft.com/ram-capturer
15 The Volatility Framework is a completely open collection of tools, implemented in Python under the GNU General Public License (GPL v2), for the extraction of digital artifacts from volatile memory (RAM) samples. More on: https://www.volatilityfoundation.org/
16 Multi-purpose forensic platform. More on: https://www.guidancesoftware.com/encase-forensic
17 Open Source Digital Forensic Software. More on: https://www.autopsy.com/
18 More on: https://accessdata.com/products-services/forensic-toolkit-ftk
19 CAINE (Computer Aided Investigative Environment) is a Linux Live CD that contains a wealth of digital forensic tools. More on: https://www.caine-live.net/
20 SIFT Workstation is a group of free open-source incident response and forensic tools designed to perform detailed digital forensic examinations in a variety of settings. More on: https://digital-forensics.sans.org/community/downloads
21 More on: https://www.cellebrite.com/en/products/ufed-ultimate/
22 More on: https://toolcatalog.nist.gov/index.php
23 More on: https://belkasoft.com/ec

- forensically acquiring a device, RAM or a cloud;
- reviewing device file system, deleted data and special places;
- searching communications, documents and media;
- finding deliberately deleted artefacts;
- if artefacts are robustly deleted, finding implicit traces;
- searching encrypted files and decryption;
- in-depth SQLite database analysis;
- link analysis based on communication in multi-device cases.

Comprehensive Digital Forensic Investigation with BEC can be performed in three steps:

1. **Data acquisition**
   a. capturing a Live RAM dump and
   b. creating a forensic image of the suspect's hard drive
2. **Discovering and Analysing Evidence**
   a. applying techniques to identify and extract data – Examination
   b. using data and resources to prove a case – Analysis
3. **Creating Reports, Sharing Evidence and Getting Ready for a New Case**

Acquisition

When starting new case in BEC, we can choose whether we want to add the existing data source or we want to acquire and analyse a new one (Figure 2). With *Belkasoft Acquisition Tool*, obtaining data from following types of data sources are currently supported:

- Hard or removable drives - physical acquisition (as DD or E01 image) of hard drives, SSD drives and removable drives connected to computer, laptop or tablet.
- Mobile devices - data from Android and iOS devices (iPhones, iPads), including iOS 10. For rooted Android devices physical image is acquired, otherwise logical image is acquired.
- Cloud data - data can be downloaded from most important clouds such as Google, WhatsApp, Instagram and all popular email clouds.



Figure 2. Adding data source for examination in BEC

Additionally, with *Belkasoft Live RAM Capturer*

• Computer RAM memory - of a running Windows computer, laptop or tablet can be dumped in a raw format.

Creating a forensic image of the suspect's hard drive is considered as an essential step, a must-do in any investigation and must not be omitted. BEC also accepts memory images and disk images in all popular forensic formats (EnCase E01 and Ex01 images, FTK images, UFED physical dumps for mobile phones, DD images, SMART images, JTAG and chip-off dumps, VMWare, VirtualBox and Virtual PC files, Hibernation and page files, etc.), allowing processing of images previously acquired with non-Belkasoft imaging tools. It is important to understand that one process is performed for traditional (magnetic, spinning discs) hard drives and common flash memory such as USB sticks and memory cards, while solid-state drives (SSD) present an entirely different issue. SSD drives represent a new storage technology, operating much faster compared to traditional hard drives. They utilize a completely different way of storing information internally, which makes it much easier to destroy information and much more difficult to recover it. Traditional forensic methods fail[24] (there are some exceptions in some circumstances) when attempting recovering information deleted from SSD drives, or trying to recover anything from an SSD drive formatted with either Quick or Full format. Anyway, this issue is beyond the scope of this paper.

As stated earlier **memory dumps** can be a valuable source of ephemeral evidence and volatile information. Analysing a memory capture is a bit different from a hard drive analysis. With memory analysis one can try to actually recreate what the suspect was doing at the time of the system capture. Memory forensics can provide information about applications and running processes, passwords, login credentials, terminated and cache processes, traces left by malware and all other volatile data that are lost when device is turned off. Therefore, memory dumps may contain passwords to encrypted volumes (TrueCrypt, BitLocker, or PGP), account login credentials for many webmail and social network services such as Gmail, Yahoo Mail, Hotmail; Facebook, Twitter, Google Plus; file sharing services such as Dropbox, Flickr, SkyDrive, etc. Acquiring memory dump for memory analysis can be performed with *Belkasoft Live RAM Capturer* (Figure 3.).

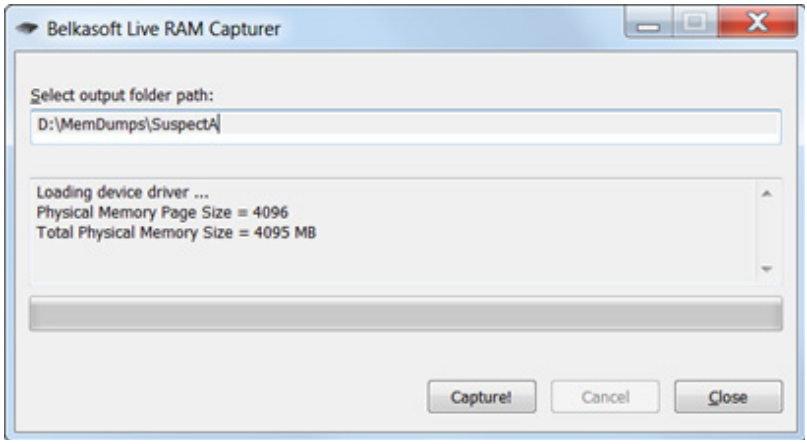


Figure 3. Acquiring memory image using Belkasoft Live RAM Capturer

24 Due to the use of TRIM command, releasing the space (making it free for writing) is done by effectively zeroing information as soon as it's marked as deleted by the operating system.

Belkasoft Live RAM Capturer is a free forensic tool that allows reliable extraction of the entire contents of computer's volatile memory – even if protected by an active anti-debugging or anti-dumping system.[25] The tool runs in the system's most privileged kernel mode, and allows acquisition of the complete contents of the computer's RAM along with protected memory areas.

Memory dump is stored with .mem extension and can be later added as a data source and analysed with BEC (or some similar analysis software). Besides RAM image file, a path to hibernation or page files (hiberfil.sys and pagefile.sys) can also be specified. These two kinds of files may contain Live RAM data written on a hard drive as a part of Windows functioning, thus they are important source of RAM artefacts, because the RAM contents may survive switching a computer off. Also, some other tools can be used to extract decryption keys out of the RAM dump and use them to decrypt and mount protected volumes (e.g., Elcomsoft Forensic Disk Decryptor[26] or Passware Kit Forensic[27]).

BEC allows searching for various forensic artefacts inside the memory, like browser histories, including deleted data and private browsing history, SQLite databases, pictures, documents, messenger chat histories, registry files, and more.

In order to carry on Live RAM analysis, data carving is used. Carving technique is a bit-precise sequential scan of the media for various artefacts. Carving can locate evidence, ignoring file names and file system, by reading low-level data directly from the media and looking for particular sequences of bytes or characteristic signatures specific to certain types of evidence. It may give a clue that some interesting data can be stored in a particular spot on the disk. Data carving is an indispensable technique which allows locating evidence that was deleted, destroyed, or never stored on the hard drive at all (page file, hibernation file, RAM contents).

Loading the data sources on which carving will be performed is shown in Figure 4. The result of the carving process is shown in Figure 5, where the extracted Gmail remnants indicate corruption of the messages (not all fields are available).

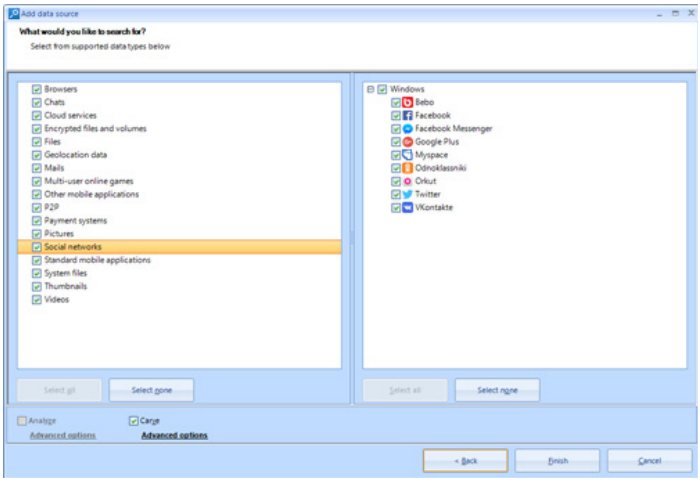


Figure 4. Data sources that can be carved and searched for evidence

25 Due to recent changes made by Microsoft in certification of kernel-mode drivers, Microsoft's policy has toughened, and Live RAM Capturer has stopped working on certain versions of Windows 7.
26 More on: https://www.elcomsoft.com/efdd.html
27 More on: https://www.passware.com/kit-forensic/

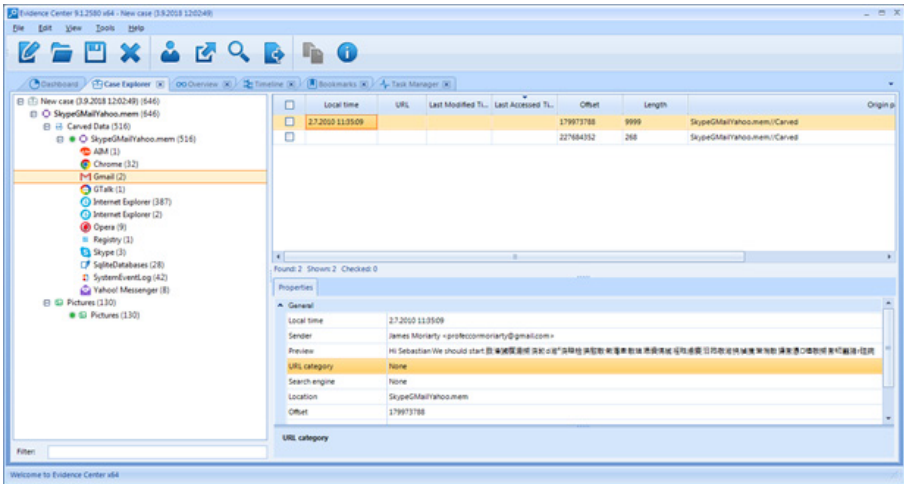


Figure 5. *The result of carving process performed on memory dump*

Discovering and Analysing Evidence

After acquiring forensic images of RAM and disk, BEC is used to retrieve the existing and deleted evidence in full auto mode from all major operating systems, both computer and mobile (Windows, Linux, MacOS X, iOS, Android, Windows Phone, Blackberry). The following types of data can be located or recovered if deleted:[28]

- Pictures and Videos;
- Emails;
- Web browser histories, cookies, passwords, cache, etc.;
- Mobile application data;
- Chats and instant messenger histories;
- Office documents;
- Peer-to-peer Software;
- Social network communications, Cloud Services and Online Games;
- Registry files;
- System files and configurations;
- Encrypted files and Volumes;
- SQLite databases;
- PCAP files;

The following types of analysis are available:

- Search and analysis of the existing and deleted files;
- Data carving and destroyed evidence recovery;
- Live RAM analysis;
- Hibernation and page file analysis;

28 More on: https://belkasoft.com/ec

- Native SQLite analysis with free list support (discovers deleted SQLite records, e.g. Skype conversations, WhatsApp messages, iPhone deleted SMS/text messages, Chrome downloads, etc.);
- Picture/photo analysis including EXIF and GPS analysis, face/pornography/text/forgery detection;
- Video key frame extraction;
- Encryption detection;
- Network traffic analysis, and many others.

In Live RAM analysis carving can help extracting recent messenger conversations, text messages sent and received, and any other temporary information used by applications, such as Facebook, Gmail and World of Warcraft (Gubanov, 2012). Although the obtained information may be damaged or partially overwritten, they still can provide enough evidence for the investigation as it can be seen in Figure 6.

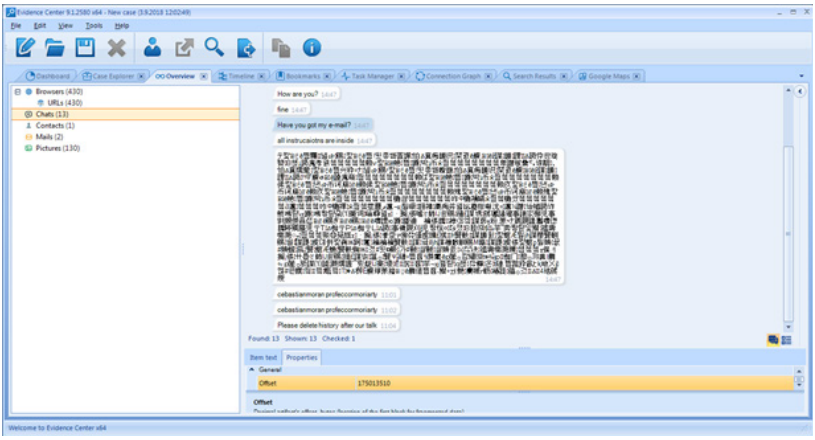


Figure 6. Evidence provided by memory dump analysis

In BEC an automatic multimedia content analysis is provided, helping investigators in quick detection of pornography content, human faces, specific text or forgery as shown in Figure 7.

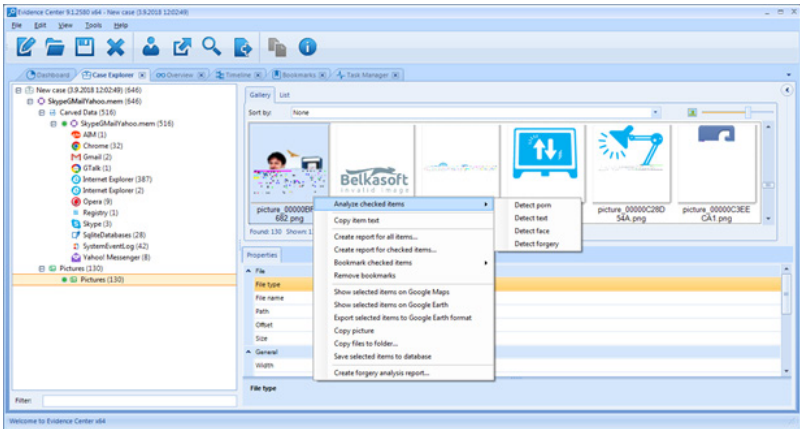


Figure 7. Different types of multimedia analysis with BEC

In order not to lose credibility as acceptable evidence, images presented as court evidence must not be manipulated in any way. An investigator using BEC can perform forgery detection techniques (from Forgery Detection plugin) on discovered images and provide the probability of the image being manipulated (forged). By doing so they can validate whether digital pictures submitted as evidence are in fact acceptable.

Creating Reports

Finally, a report can be automatically obtained in order to help presenting in the court the significance of the obtained digital evidence. BEC allows creating reports in all most popular formats (text, HTML, XML, PDF, CSV, etc.). The report options are highly customizable and the resulting report can be presented in court or shared with a colleague. An example of the report in HTML format is shown in Figure 8.

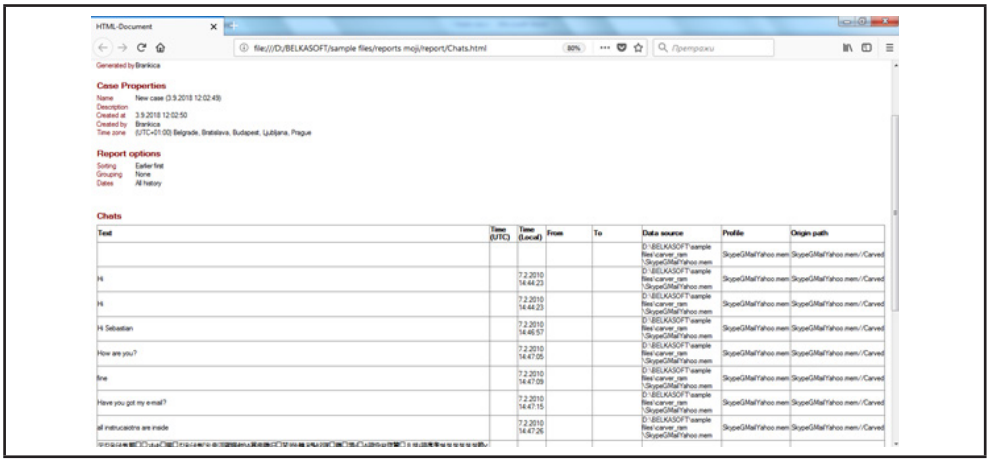


Figure 8. Part of Report (in html format) for Chats previously shown in Figure 6

CONCLUSION

Digital forensics (especially memory and cloud forensics) is an emerging field, rapidly growing in the last decade. With the aim of providing digital evidence which will help law enforcement investigation of cybercrimes, it relies on utilization of adequate techniques and tools. There is a variety of available tools on the market designed to perform a single task (e.g., acquisition) or multiple tasks (analysis, reporting, etc.) in digital forensic process. Since advances in technologies (e.g., ubiquitous computing) have led to an increase in the volume and variety of data available for digital forensic analysis, the need for efficient techniques and tools is rapidly growing. Although efficiency and effectiveness of even most popular tools is not yet sufficient to handle the tremendous increase in cybercrime, without them the investigation of cybercrime would be almost impossible.

There are a number of digital forensic tools that become a standard in forensic investigation providing digital evidence that are acceptable to the court of law. This paper has discussed one of them, Belkasoft Evidence Center, whose capabilities were briefly presented.

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CRISIS MANAGEMENT OF MALICIOUS ACTIVITIES IN CYBERSPACE

Goran Matić, PhD
Milan Miljković, PhD[1]
Office of the National Security Council and classified information protection of the Government of the Republic of Serbia

Zoran Mačak, MSc
Strategic Planing Department, Ministry of Defence of the Republic of Serbia

Abstract: Massive use of information communication technologies in the information age has resulted in the emergence of new risks and threats that are manifested as physical and software-related hazards to the critical information infrastructure and cyberspace of significance to the state and its security. Their origin can vary from criminal to politically motivated and terror-related entities, as well as be sponsored by other states with a view to achieving economic, political, military and national security-related objectives. Despite the fact that a common definition has not as yet been adopted by international theoreticians to allow identification and classification of cyber incidents, the leading states in the world, as well as international organizations have shown an increasing awareness of the need to act in order to enhance the level of cyberspace security.

With regard to the organisational aspect, the crisis management in the area of cyber security implies engaging relevant capacities of the state authorities and the private sector. Further to the organizational aspect, it is also very important to identify a coordinating body, which is most often derived from the executive branch, the role of which will be to harmonize and guide the overall policy of cyber security of critical infrastructure in the state and private sectors.

This work sets out to propose definitions of the most relevant manifestations of malicious activities in cyberspace, as well as institutional models of coordination and crisis management in case of major cyber incidents at the national level.

Keywords: cybercrime, cyber espionage, crisis management, cyber security.

NOTION OF CYBERSPACE

The end of the 1980s and the beginning of the 1990s were marked by the origin of modern information systems, the basis of which is made of personal computers and computer networks. The metaphor cyberspace is most commonly used to describe this "ethereal reality" created in contact between man and computer (Putnik, 2009:18). In addition, the prefix "cy-

1 milan.miljkovic@nsa.gov.rs

ber“ is associated with the term cybernetics. According to the Vujaklija's Lexicon of Foreign Words and Expressions, cybernetics is the science of the common principles and laws that govern the transfer and processing of information in technical, biological and economic systems (Vujaklija, 2002: 408).

According to W. Schwartau cyberspace is an intangible place in between computers where information exists fleetingly in its flow from one end of the global network to the other. It is an ethereal reality that includes an infinite number of electrons that move along copper wires or glass fibers at the speed of light (Schwartau, 1994:49). John Arquilla and D. F. Ronfeldt use the following descriptive definition: “the cyberspace exists everywhere there are telephone wires, fiber-optic lines or electromagnetic waves. This environment is inhabited by knowledge existing in the electronic form“ (Arquilla & Ronfeldt,1997: 23–60). The term cyberspace denotes an online world of the Internet (computer networks) and also a digital world in general (Tipton & Krause, 2004: 31-71).

National cyber security strategies define “cyberspace“ differently. In some of them, it is essentially equivalent to the Internet while others contain a far more extensive definition of the notion. Thus the Cyber Security Strategy for Germany defines cyber as the virtual space of all IT systems linked at the data level on a global scale. This Strategy stresses that the Internet, as a universal and publicly accessible network, constitutes an essential condition for the existence of cyberspace and that it can be further complemented and expanded by any number of additional data networks. It is also stated in the above document that IT systems in an isolated virtual space are not part of cyberspace (Cyber Security Strategy for Germany, 2011:14). In contrast, the UK Cyber Security Strategy (2011) sets out that cyberspace can imply the Internet. However, it is not an essential condition for cyberspace to exist. It is also stated therein that cyberspace is an interactive domain made of digital network for storing and modifying (working on) data and information. It includes the Internet, as well as other information systems that support various business processes, infrastructures and services (The UK Cyber Security Strategy, 2011:12).

Nowadays cyberspace constitutes a domain for competition between the great powers and numerous actors. It is also an area where combat actions are executed as it were land, sea, air and outer space. Cyberspace, as a new domain for battle actions, is characterized by the use of an electronic and electromagnetic range of tools for data storage, modification, and exchange through interlinked systems that are connected to the physical infrastructure.

TYPES OF MALICIOUS ACTIVITIES IN CYBERSPACE

There are several types of cyber attacks i.e. malicious activities in cyberspace. One of the most general divisions is the one, which is quoted, among others, by the experts of the International Telecommunication Union (ITU). That division is made according to the source position of attack. In this connection, The Internet Security Glossary differentiates between:

1. internal attacks, and
2. external attacks.

The foregoing glossary describes „internal attacks” as assaults initiated by the entity within the security perimeter (insider). It is hard to defend oneself against insider attacks because their perpetrators abuse the privileged access they have by virtue of legitimate business functions they perform. Unauthorised or illegitimate users, by contrast, initiate “external attacks“ outside security perimeters. External attacks are launched by hackers, organized criminal

groups or states. The above-mentioned types of attacks do not exclude one another because external attackers often rely on insiders.

There are four basic forms of cyber attacks from which the other forms ensue. These types of attack are classified with respect to which information feature (confidentiality, availability, integrity, and authenticity) is threatened by a concrete cyber attack. Therefore, in this case, the four essential types of attacks on the following information features are considered:

1. attack on confidentiality,
2. attack on integrity,
3. attack on availability, and
4. attack on the authenticity of data.

Confidentiality is defined as the manner in which information is handled so as to ensure that it does not become available to unauthorized persons in the course of its processing and storage, or that it has not been processed without authorization (Law on Information Security of the Republic of Serbia, 2016: 2). This feature is brought into relation with any unauthorized obtainment of information, including the "covert traffic analysis" by means of which the attacker makes conclusions about the content of communication only by observing communication patterns. The German Cyber Security Strategy sets out that cyber espionage is a cyber attack carried out by a foreign intelligence service, and directed against confidentiality of an IT system (Cyber Security Strategy for Germany, 2011:14).

Integrity means maintaining the original content and completeness of information or assets (Law on Information Security of the Republic of Serbia, 2016: 2). An attack on the integrity represents an unauthorized modification of information or source of information, such as databases. Attacks can employ hacking techniques to modify, destroy or compromise the integrity of information. An attack on the integrity of information can involve a sabotage of a database in order to achieve criminal, political or military objectives. Rather than being classified as espionage (gathering intelligence in cyberspace), an attack on the integrity of information in cyberspace and the adversary's computer system can be grouped together with the types of secret operations that intelligence services carry out in cyberspace, as counterpart activities of deception and spreading disinformation. Among such attacks are the distribution of disinformation and deception in cyberspace, the aim of which is to modify or manipulate information and to introduce contradictory information with the view of affecting one's business performance or destabilizing foreign governments.

Availability is a manner in which information is managed to ensure that information is available and usable at the request of authorized persons at the moment when they need it; in the event of attack on availability of information, the objective is to prevent the authorized user from gaining access to the system or a database to carry out specific tasks. In most cases, they are denial-of-service (DDoS) attacks, and they cover a wide range of malware or physical attacks on computers, databases or networks that are linked to databases. A cyber sabotage is an attack against the integrity and availability of an IT system (Cyber Security Strategy for Germany, 2011:14). Based on the viewpoints in the above-mentioned sections, a cyber sabotage can also be included in the spectrum of secret operations for exercising intelligence services' influence in cyberspace.

Authenticity is another important feature of information management, which means that information was generated or sent by those who have declared that they carried out the given operation.

Further to this, based on the analysis of the viewpoints set out in the relevant strategies of the developed countries, malicious cyber activities can generally be divided into:

1. cybercrime, 2) cyber terrorism, 3) cyber espionage, and 4) cyber warfare.

It is must be pointed out that the physical form of cyber terrorism, cyber warfare, cyber espionage and cybercrime often look the same or alike. To illustrate this point Lech J. Janczewski and Andrew M. Colarik describe a situation where an individual hacks into a hospital's medical database and presribes a medicine to a patient who is allergic to it. As a consequence, the patient dies. If the intention of the attacker were to harm the patient or kills that individual for some personal reasons, the event would be qualified as the criminal act of murder carried out by means of the computer technology or, in other words, *cybercrime*. If the attacker made it know later on that he/she were ready to commit more such acts if his/her demands were not fulfilled, then the matter would concern cyber terrorism. However, if the attacker were also an agent of the foreign adversary's structure, and if classified information of significance to national security had been stolen in the process, then such action could be labeled as cyber espionage. It follows from the above that the attacker's intention is one of the impactful factors in the classification of malicious cyber activities into cyber terrorism, cyber espionage or cybercrime. (Lech J. Janczewski & Andrew M. Colarik, 2008: xiv).

Malicious activities in cyberspace can also be carried out by state or non-state actors; they imply active conduct of the attacker, as well as strive to jeopardize the functioning of the victim's computer network. In addition, they have to be carried out for the purpose of achieving a political or national security objective. In this sense, if we try to put forward an approximate definition of cyber warfare, we can say that cyber *warfare* is represented by cyberattacks with state actors standing behind them, the effects of which are equivalent to those of a conventional "armed attack", or cyber attacks that occur in the context of an armed conflict and develop to the level of cyberwar (Hathaway & Crootof, 2012:17).

CRITICAL INFRASTRUCTURE PROTECTION IN CYBERSPACE

The protection of critical infrastructure in cyberspace is defined as strategies, policies, and willingness that are necessary to deter, prevent or respond in case of an attack on the critical infrastructure (Lewis, 2006: 4). More specifically, the critical infrastructure protection has its 1) political and legal aspect 2) organizational aspect, and 3) executive aspect.

The *political aspect* covers the adoption of appropriate policies, strategies and laws on cyber defense, information security, critical infrastructure and legislation necessary for the legal regulation of deterrence, prevention, and response in case of a cyber attack on the critical infrastructure.

When considering the *legal aspect* of cyber defense of the critical infrastructure, the following important cyber defense rules should be mentioned:

1. territoriality rule, which implies that the information infrastructure located on the state's territory is the object of its territorial sovereignty,

2. responsibility rule, which means that the given state will bear responsibility for a cyber attack if it were launched from the information system located on its territory,

3. cooperation rule, which implies that the state from whose territory the attack has been launched is under obligation to cooperate with "the victim state", and

4. the right to self-defense, which means that everyone is entitled to self-defense in case of obvious and imminent danger while respecting the provisions of the law of armed conflicts.

In *organizational terms*, the crisis management in cyber defense implies engaging the capacities of the following ministries: justice and public administration; transportation; de-

fense; foreign affairs; finance; internal affairs, as well as those of security and intelligence community. In this sene, the developed countries have been making important steps since last year to identify the existing civilian and military capacities and establish the new ones to be competent for cyber defense, as well as to define interdepartmental cooperation and the role of private sector in this sphere.

With regard to the *executive phase of defense* of the critical information infrastructure, it should be stated that the Critical Information Infrastructure Protection (CIIP) is based on the following four pillars (Suter, 2007: 1):

1. prevention and early warning,
2. detection,
3. reaction, and
4. crisis management.

The domain of critical infrastructure, which needs to be protected at the national level, includes not only the static infrastructure but also services, as well as the physical and electronic flow of information. It is exactly in this sense that cyberspace also represents critical infrastructure while the protection concepts of critical infrastructure and cyberspace are closely connected. It should be pointed out that the problem area of cyber defense is additionally pronounced within some of the above-mentioned sectors of critical infrastructure. Different infrastructural facilities in those sectors are most often connected to particular communication links through cyberspace or the management of particular resources is conducted by means of embedded processor computer systems (*Supervisory Control and Data Acquisition Systems – SCADA Systems*).

Rather than being able to act on its own while protecting the critical infrastructure, it is necessary for the state sector (governments) to cooperate with representatives of the business sector, NGOs and experts in relevant fields. Such cooperation is especially important, given that, when it comes to developed countries, ownership, and critical infrastructure system management fall mostly within the remit of privately owned legal entities. For that reason, the private sector has to be significantly engaged in the protection of critical infrastructure due to which the public-private partnership model is considered an important pillar of a critical infrastructure policy.

EXPERIENCES FROM THE EU COUNTRIES WITH REGARD TO CRISIS MANAGEMENTIN CYBER SECURITY IN THE EVENT OF MAJOR INCIDENTS

The analysis of cyber security strategies of many EU countries suggests that the following mandates of states have been differentiated in cyberspace so far: *cyber management* which implies coordination of activities at the national level; *protection of critical infrastructure and crisis management* which implies a public-private partnership concept; *countering cybercrime* which falls within the remit of the law enforcement bodies; *intelligence and counterintelligence activities* which fall primarily within the remit of signals intelligence services (*SIGINT*); and *military activities* which range from the protection of specific information-communication systems to trainings for carrying out attack operations.

In institutional terms, crisis management in cyber security implies engaging capacities of the respective ministries of justice and public administration; transportation; defense; foreign affairs; finance, internal affair, and the security intelligence community.

Unlike many other areas of national security, it is obvious that cyber security falls within the remit of a number of state institutions. For that reason it is necessary to provide a function within the state apparatus to coordinate this activity and ensure a *national state approach* of the entire government at all levels (strategic, operational and tactical) throughout the cyber incident management cycle, which includes the following phases: 1) preliminary action, 2) prevention, 3) preparation, 3) response, 4) recovery - consolidation 5) investigation, analysis and other activities after an incident (National Cyber Security Strategy Guidelines, 2013).

Due to the above mentioned reasons the function of interdepartmental coordination of cyber security is called "national cyber security management."

Bearing in mind the earlier stated considerations, the responsibility for coordinating work is often assigned to a body that has a mandate to give tasks to ministries and national agencies, and is responsible for a number of coordinating activities between different departments and agencies (e.g. an office within the Cabinet Office of the Prime Minister) owing to which such a body should have a relatively high position within the state apparatus.

The coordinating function in the area of cyber security has several central roles, the most important among them being: coordination in the course of making a cyber threat assessment at the national level (it is often elaborated for the purpose of adopting a national cyber security strategy), coordination in the course of drafting a National Strategy, coordination in the course of establishing and functioning of a national (public-private) Cyber Security Council, and coordination in the course of managing crisis situations and any foreign security incidents that involve cyberspace.

Following the adoption of the National Cyber Security Strategy and, in addition to the assignment of responsibilities for designing an Action Plan, the Strategy should be further elaborated to identify a competent body for the implementation of activities, or an alternative body that will ensure coordination and supervision of implementation of such activities if a particular task is distributed between several state institutions. Based on the Strategy the Coordinating body should lay down guidelines to all public administration departments, public and private sector, as well as to academic institutions, which should then develop their policies, strategies and legal framework for their respective departments to be subjected to the national policy and strategy in line with the national and international legislation.

At the strategic and political level, Prime Ministers usually have the leading role in carrying out the overall cyber security policy, as an element of national security, and they establish the rules related to the implementation of the national information system security.

The Prime Minister is often provided assistance in discharging the above duties by a body which is part of the Cabinet Office, e.g. *Office for Cyber Security* responsible for intergovernmental coordination and strategic leadership in connection with cyber security, as is the case in Great Britain.

The second most frequent scenario for ensuring coordination at the strategic level is to form the *Cyber Security Council,* as envisaged by the Strategy, by virtue of the Government decision. The activities of this body will be steered by the *National Coordinator for Cyber Security,* who is under the direct control of the Prime Minister.

The Cyber Security Council established by the Government or the relevant Ministry for cyber security is often subordinated to the National Security Council. The Cyber Security Council is provided technical support by the Government or the relevant Ministry for cyber security and is often under the direct control of the National Security Council. The work of the latter body is administratively and technically supported by its own secretariat, as well as by the relevant public bodies tasked with assisting the Council in discharging its responsibilities, as precisely stated in the Government decision on the Council work.

The Cyber Security Council or the Cyber Security Office represents the highest ranking state body for interdepartmental coordination in this area. That body is comprised of *several functional interdepartmental groups* that address various issues, such as national cyber security questions, crisis situations, international matter, public-private partnership related points, as well as those that concern education, training, exercise, research, and development. Government officials, corporate specialists and academic experts take part in activities of the interdepartmental groups, which are excellent examples of how the private sector can become involved in the Government decision-making. Through these working groups, the non-state sector may enter into an active partnership with the state in the course of adopting new legislation in the subject area, while bearing in mind that domestic and international companies have great knowledge and experience in cyber security. The Council is tasked with monitoring the success of the implementation of the Strategy and the Action Plan objectives by submitting an annual progress report to the Government.

At the operational and tactical level, intelligence-security services, Ministry of Interior or Ministry of Defense are most often responsible for the cyber security of significance to national security, and are frequently under the responsibility of the departmental minister, Government Cyber Security Coordinator or the Government Chief Information Security Officer (CISO). In case of massive cyber security incident that demands a coordinated response by several Ministries, the Cyber Security Council may activate the **Interministerial Unit for Crisis Situation (Special Situations Committee)** that supervises the coordination of responses, and the **Cyber Security Center**, **Government Technical Team for Cyber Incidents and Interventions (Government CERT)** or the relevant Agency (Ministry), which have a responsibility for managing criminal incidents and crisis situations related to cyber incidents, and are responsible for technical response measures. The Interministerial Unit for Crisis Situations in Cyberspace cooperates with NATO, the European Union, and other international organizations **as a contact point during international crisis situations**. In order to successfully monitor and respond to incidents in the course of cyber crisis situations, the Inter-ministerial unit for crisis situations run by the National Coordinator holds a session at the **Situational Center,** which is established either within the relevant Ministry or Agency for operational response to cyber incidents or within the Office of the Prime Minister. **A capability of independent review (inspection) of major incidents in cyberspace at the national level** constitutes a separate and very specific function in the cyber security domain. By adding an adequate level of cyber expertise, this function may be assigned to e.g. the National Supervisory Information Security Board composed of experts in this area.

ORGANIZATIONAL AND INSTITUTIONAL ASPECT OF CYBER SECURITY IN THE REPUBLIC OF SERBIA

The Republic of Serbia is currently going through the process of defining its critical information infrastructure to be defended from cyber threats as a matter of priority. As for the level of cyber threat the contemporary communication information systems are exposed to, unlike the previous years when attacks on mobile phones and Android platforms were within the limits of a laboratory experiment, attacks on mobile phones and software platforms on which these devices operate have become the most massively growing form of cybercrime (Živković, 2013). It is indisputable that an open and unprotected cyberspace creates almost infinite possibilities for putting national interests in danger. Despite all potential benefits, the proliferation of information technology has increased the vulnerability of information systems in the country.

In accordance with the provisions of the Law on Information Security, the Serbian Government has established the **Coordination Body for Information Security Affairs** composed of representatives of the ministries responsible for performing tasks relating to information society, defense, internal affairs, justice, as well as of representatives of the security services, Office of the National Security Council and Classified Information Protection, Administration for Joint Affairs of the Government Bodies and the national CERT. Its remit includes enabling cooperation and coordinated action aimed at improving information security, and initiating and monitoring preventive and other activities in this sphere.

Also based on the provisions of the above law, the Ministry of Trade, Tourism and Telecommunications is a relevant state authority for ICT systems security, or, more precisely, that ministry is envisaged to be the relevant authority for network and information security (*NIS*).

The above law further sets out that the role of the national CERT be performed by the Regulatory Agency for Electronic Communications and Postal Services. The national CERT collects and exchange information on risks to ICT systems security, as well as on events that threaten their security in which connection that body will notify, warn and advise persons that manage ICT systems in the Republic of Serbia. It is also planned that every important institution, legal entity and group of legal entities should establish a separate CERT center to engage in cooperation with the national CERT. Furthermore, in order to protect ICT systems on the Computer Network of Government Bodies, the Center for Security of ICT Systems of Government Bodies will be formed, the tasks of which are currently carried out by the newly formed Office for IT and e-Government of the Republic of Serbia.

CONCLUSION

The Internet is a global phenomenon which is uniform in nature and applies to all - the small and the big, the poor and the rich, the powerful and those who are not. The Republic of Serbia is in the phase of establishing its cyber defense system against threats in information space and cyberspace. The key challenges that may appear in case of incidents occurring at the national level are as follows: 1) insufficient clarity of the existing procedures for communication in crisis situations, 2) unclear legal term explanations: definitions and classifications of incidents, 3) lack of a central operational body for response and coordination of all other actors in case of a national cyber incident, 4) lack of clear guidelines and procedures for communication between the relevant authorities and the general public ,5) undefined powers, operational functioning and procedures for response by national contact points for international cooperation to be pursued through the United Nations (UN) and the Organization for Security and Cooperation in Europe (OSCE).

Taking into consideration the EU requirements and experiences in organizing the concepts of cyber security and defense, we take the view that the key measures the Republic of Serbia should implement in this area are as follows: 1) defining the public-private partnership concept; 3) forming the National Council and the relevant ministry (appointing the minister without portfolio) to be responsible for cyber security; 4) establishing more efficient interdepartmental coordination in case of incidents of national importance; 5) setting up a training system in the area of cyber security, and 6) standardization in the field of training, technology, equipment and certification.

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THE ROLE AND IMPORTANCE OF INTEGRATION OF FUNCTIONAL TELECOMMUNICATION SYSTEMS IN EMERGENCIES

Milan Gligorijević, PhD[1]
University of Criminal Investigation and Police Studies, Belgrade

Radosav Popović[2]
MoIof the Republic Serbia, Sector for Analytics, Telecommunications and Information Technologies, Belgrade

Aleksandar Maksimović[3]
MoI of the Republic Serbia, CERT Centre, Belgrade

Abstract: Almost every segment of the social life of today cannot even be imagined without the use of modern information technologies and technological achievements. Global expansion, development and implementation of information and communication systems in all fields provides a realistic opportunity and opportunity for today's man to adequately respond to the growing civilizational challenges of the modern era. This is particularly evident in emergencies where functional information and communication systems are exposed to a large number of terminations and terminations, which can sometimes lead to unimaginable consequences and even loss of human lives. It is precisely the possibility of their integration into a centralized communication system that can overcome the most frequent and difficult problem of the functional telecommunication system in emergency situations, which is the interruption of work. About all this, the ways and possibilities for integration, redundancy and implementation of the valid standards in this field will be more discussed in the work itself.

Keywords: functional telecommunication systems, redundancy, resilience, emergency situations, system integration, information and communication technology

INTRODUCTION

Emergency situations are unforeseen and unplanned situations that can greatly endanger the property, health and life of people. Large-scale emergency situations require response and management in circumstances of interruption of communications caused by the very disaster. (Simpson & Hancock, 2009) When autochthonous communication systems are partially or

1 milan.gligorijevic@mup.gov.rs
2 radosav.popovic@mup.gov.rs
3 aleksandar.maksimovic@mup.gov.rs

completely disrupted, the activities of the various entities that respond in cases of emergency situations, which often do not share common experience and practice, must be coordinated.

An emergency communication system is any system is sometimes also known as Communication System during Disasters(CSDD), that is organized for the primary purpose of supporting one-way and two-way communication of emergency messages between both individuals and groups of individuals. These systems are commonly designed to integrate the cross-communication of messages between a variety of communication technologies, forming a unified communication system intended to optimize communications during emergencies. Communication is a major bottleneck in case of any major disaster particularly when the traditional network system already in force break down.Mobile communications systems are very complex, especially sensitive and unstable during natural disasters (earthquakes, floods, etc.), so interruptions are part of everyday life. Therefore, mobile network's breakdowns can have serious and major consequences on economy of a country.(Gligorijević, Bošković &Maksimović, 2017)

An emergency notification system refers to a collection of methods that facilitate the one-way dissemination or broadcast of messages to one or many groups of people with the details of an occurring or pending emergency situation. Mass automated dialing services such as Reverse 912, and common siren systems that are used to alert for earthquakes, floods, air-raid, etc., are examples of emergency notification systems.

Emergency communication systems often provide or integrate those same notification services but will also include two-way communications typically to facilitate communications between emergency communications staff, affected people and first responders in the field. Another distinguishing attribute of the term "communication" may be that it implies the ability to provide detailed and meaningful information about an evolving emergency and actions that might be taken; whereas "notification" denotes a relatively more simplistic one-time conveyance of the existence and general nature of an emergency (ERL - Emergency Rescue Location) (Bejuri, MohdYaakob, MohdMurtadha, Radzi Raja& Raja, 2015).

Emergencies place demands on communication processes that are often significantly different from the demands of non-emergency circumstances. Emergencies often involve escalating and evolving events that demand high performance and flexibility from the systems that provide emergency communication services. Message prioritisation, automation of communication, fast message delivery, communication audit trails, and other capabilities are often required by each unique emergency situation. Inadequate emergency communications capabilities can have consequences that are inconvenient at best and disastrous at worst. ("Standardizationforemergencycommunications", 2008)

Depending on the location, time, and nature of the emergency, a large variety of limitations could present themselves when it comes to communicating details of an emergency and any resultant actions that may need to be taken to protect life and property. For example, an audio public address system might be rendered ineffective if the emergency happens to be an explosive event which renders most or all of those affected deaf. Another common example might be the limitation of a fire alarm's siren component in a deaf school. Yet another example of a limitation could be the overloading of public services (such as cellular phone networks), resulting in the delay of vital SMS(Short Message Service) messages until they are too late. (Traynor, 2008)

INFORMATION NEEDS IN EMERGENCIES

The effectiveness of disaster relief reduction and adequate response to them relies heavily on the efficiency of the management of relevant information. Prevention, mitigation and disaster recovery planning activities require the acquisition of basic country data and its major risks in order to make quality and risk analysis as good as possible. Also, activities for disaster response, rehabilitation and reconstruction depend on the acquisition of the necessary information in real time about the consequences of the disaster and the available resources to combat them. Information must be easily collected, processed, analyzed and shared so that all entities respond effectively to the threat in a timely manner.

Countries also need to have disaster information strategies to handle critical basic information that can be used for disaster preparedness, emergency response during a disaster, and post-disaster need for damage assessment, rehabilitation and reconstruction. This basic information can be collected through intensive mapping of risk and assessment of the main areas that led to a disaster. The information management cycle, shown in Figure 1., is one way of understanding this process.

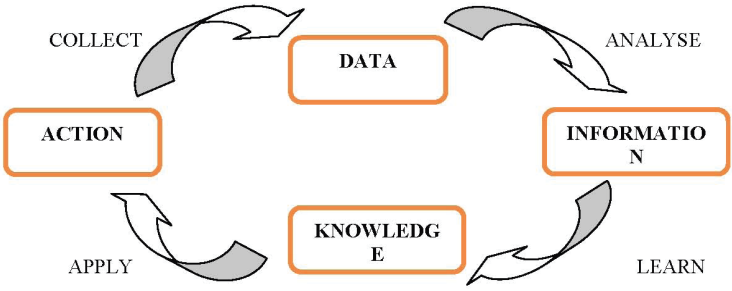


Figure 1. *Information management cycle*

Information management cycle (IMC)(Stephens, 2007) is an approach to data and storage management that recognizes the value of information changes over time and that it must be managed accordingly. IMC seeks to classify data according to its business value and establish policies to migrate and store data on the appropriate storage tier and, ultimately, remove it altogether. IMC has evolved to include upfront initiatives like master data management and compliance.

A comprehensive information and communication system should not be limited to one system only, but should be designed so that it can be used in conjunction with many functional telecommunication systems. Functional telecommunication systemis a telecommunication system that, in addition to the basic role of information transmission, meets additional criteria that relate to: compatibility with other systems, process automation, redundancy, sustainability in different conditions, security, etc.Monitoring, communication and control systems in different organizations must be compatible in order to easily connect in extraordinary situations. In some situations, organizations are trying to improve the efficiency of emergency management programs using closed circuit television cameras to give their first customers the ability to see what is happening and what efforts are needed to respond to an emergency situation. Some groups require the creation of real-time emergency management tools that allow users to use GPS (Global Positioning System) and building management systems to coordinate response efforts.(Ward&Peppard, 2002) A true emergency management system should consider the integration of all types of systems into one tool that enables the user to easily, effectively understand, communicate and coordinate urgent efforts.In most organizations,

there are mainly several systems, including environmental protection (fire, gas and smoke detection, alarm and sprinkler systems), security (monitoring, access control and intrusion monitoring systems), building automation (HVAC - Heating, ventilation, and air conditioning - the technology of indoor and vehicular environmental comfort, energy management) and communication (voice and data systems). When dealing with the design and development of an emergency communication system, the organization must determine the best way to integrate different systems to become an effective tool for use in case of an emergency.

INTEGRATIONAL REQUESTS FOR TELECOMMUNICATION SYSTEMS IN EMERGENCIES

Each functional telecommunication system in emergency situations must meet the following integration requirements:

- Compatibility/Interoperability
- Automatization of the process
- Redundancy
- Standards compliance
- System backup
- Sustainability
- Security

Compatibility/Interoperability is a term used in an industry that explains the possibility of using peripheral devices, switching modules, and one-generation computer programs on the second generation, or the possibility of similar use of a computer or a computer manufacturer on a computer line to another manufacturer. (Baldini, 2010)

Compatibility is in fact compliance, and in a single complex system, compliance is important if the system wants to work without major disturbances. This concept was very important in the computer industry, since any decision in the development of one computer at the circuit level and at the operating system level would in some way diminish the hardware, peripherals and software that the consumers had. More recently, software compatibility is less important because it is possible to emulate one computer system on the other, and the price of circuit breakers and peripheral devices is folding. Compatibility (compliance) can be easily achieved if standards are available to all manufacturers and developers, whether standards are at the level of the circuit or software. To support these attributes, a "unified" emergency communication system should be able to connect to and communicate with other related systems, hence the term. A fundamental problem in this area is the lack of technical and procedural interoperability among warning originators, system providers, delivery systems, and warning recipients. Originators of warnings must undertake expensive, redundant tasks using multiple, dissimilar tools and techniques to take full advantage of today's warning systems.

Automatization of the process is a general technology term that is used to describe any process being automated through the use of computers and computer software. Processes that have been automated require less human intervention and less human time to deliver. Business process automation (BPA) is the technology-enabled automation of business processes.(Jeston&Nelis, 2014) It is performed to achieve digital transformation or to increase service quality or to improve service delivery or to contain costs. It consists of integrating applications, restructuring labor resources and using software applications throughout the organization.

Redundancy is a term used in engeneering that explains the duplication of critical components or functions of a system with the intention of increasing reliability of the system, usually in the form of a backup or fail-safe, or to improve actual system performance. An error in one component may then be out-voted by the other two. In a triply redundant system, the system has three sub components, all three of which must fail before the system fails. Since each one rarely fails, and the sub components are expected to fail independently, the probability of all three failing is calculated to be extraordinarily small; often outweighed by other risk factors, such as human error. But we must bear in mind the fact that redundancy sometimes produces less, instead of greater reliability – it creates a more complex system which is prone to various issues, it may lead to human neglect of duty, and may lead to higher production demands which by overstressing the system may make it less safe.(Sagan, 2004)

Standards compliance, in general, means conforming to a rule, such as a specification, policy, standard or law. Regulatory compliance describes the goal that organizations aspire to achieve in their efforts to ensure that they are aware of and take steps to comply with relevant laws, policies, and regulations.

System backup is the process of backing up the operating system, files and system-specific useful/essential data. Backup is a process in which the state, files and data of a computer system are duplicated to be used again or data substitute when the primary system data is corrupted, deleted or lost. System backup primarily ensures that not only the user data in a system is saved, but also the system's state or operational condition.(Akhtar, Buchholtz, Ryan, &Setty, 2012) This helps in restoring the system to the last-saved state along with all the selected backup data. Generally, the system backup is performed through backup software and the end file (system backup) generated through this process is known as the system snapshot/image. Moreover, in a networked/enterprise environment, the system backup file/snapshot/image is routinely uploaded and updated on an enterprise local/remote storage server.

Sustainability according to the classical definition, has three distinct steps, each having to be taken in strict order:

- Reduction in consumption of the end-product
- Improvement in 'efficiency' of the process
- Draw the power required from renewable sources

System security (Cyber security) is a term that explains the protection of computer systems from the theft and damage to their hardware, software or information, as well as from disruption or misdirection of the services they provide.Cyber security includes controlling physical access to the hardware, as well as protecting against harm that may come via network access, data and code injection.(Schatz,Bashroush,&Wall, 2017) Also, due to malpractice by operators, whether intentional or accidental, IT security is susceptible to being tricked into deviating from secure procedures through various methods.(Rouse, 2015)The field is of growing importance due to the increasing reliance on computer systems and the Internet, wireless networks such as Bluetooth and Wi-Fi, the growth of "smart" devices, including smartphones, televisions and tiny devices as part of the Internet of Things.

FUNCTIONAL TELECOMMUNICATIONSYSTEMS OF THE MINISTRY OF INTERIOR OF THE REPUBLIC OF SERBIA IN EMERGENCIES

In order to ensure reliable and secure mutual communication between members of the security services and state authorities in the Republic of Serbia within the information and communication system of the Ministry of Interior, the national system TETRA and the systems of mobile radio communications (LTE) have been established.

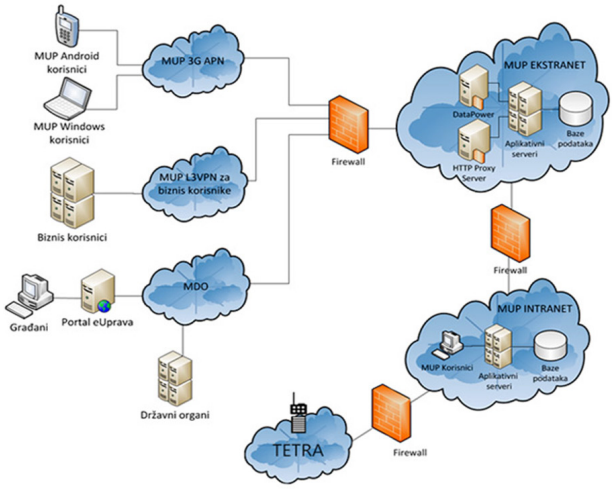


Figure 2. *Example of the TELECOMMUNICATION infrastructure of theMinistry of Internal Affairs*

TETRA is an abbreviation originally derived from English words Trans European Trunked Radio.(Owen, 1996) By expanding this mobile network beyond the borders of Europe, its name is changing and it becomes Terrestrial Trunked Radio, or Terrestrial Transference Radio. TETRA is, in fact, a European standard for mobile communications for professional purposes, which implies that the end-users of this system are enterprises and institutions, i.e. organizations (police, military, fire department, ambulance, oil industry, electric power, airports, rail, etc.) and to use the frequency range 380 to 400 MHz, intended for official purposes.

Therefore, TETRA system is a digital communication radio system that allows the mobile radio user to realize different types of calls (voice and data transmission) within a very wide geographic area, both on land, as well as on rivers, lakes, seas, as well as in the air, at lower altitudes.(Bronckers, 1996) Where they are within the coverage area, users can, by simple key press (by pressing the PTT- Push To Talk keys on their mobile stations), communicate with any talk group defined in the system, or an individual in a territory covered by this system. The term talk group is equivalent to the concept of a channel in an analogue radio system, in the sense that users on the same talk group can make group calls, but in this case the call for one talk group takes only one time slot in the channel (which has four such time slots) whose caller frequency is performed.

The stated feature of the digital radio system is its advantage over the analog system, since it provides more capacity and more free resources, so that the participant in traffic, within the

TETRA system, does not have to wait for the release of the frequency channel to make the call. This is particularly important in emergencies.

The task of the Ministry of the Interior is increasingly complex in preserving a stable security situation, has a growing need for a wide range of telecommunication services in mobile conditions, and it is precisely for this reason that it has decided to introduce the TETRA system into its use.(Gligorijević, 2013)

The Ministry of Interior of the Republic of Serbia owns and uses the TETRA system since 2005. At the moment, two switching centers are currently operating at 120 base stations, and the number of users is about 8000. Most of the users are members of the MUP, and the system also includes users from other security structures. The ultimate goal is a national system with about 250 base stations across Serbia that would be able to support about 50,000 users. The MUP of Serbia is a member of the TETRA Association.

In order to meet the requirements of the organization of a special purpose system, such as the Ministry of Interior, in the larger towns in Serbia, where there are emergency services, the existence of so-called dispatch centers is envisaged. These centers have a special role in managing traffic in the system, taking into account the hierarchy of sensitive services, such as the Ministry of Interior and the services with which it cooperates and the supervision of all users in the territory that belongs to a particular center, using special devices, console. Consoles use a special application that provides its users with 24 hours to monitor the operation of individual teams and individual users, to mediate between users located in different territories (belonging to different zones), to dynamically re-register users in case of need, manage emergency calls, etc. Also, the TETRA system has the possibility to connect with other functional networks (EPS, EMS, etc.), as well as the possibility of their integration into a unified system, all in order to communicate and coordinate the relevant services in emergency situations.

It should be noted that the TETRA system also enables connection to the telephone exchange (calling public fixed and mobile numbers using a mobile station, calling local numbers using mobile stations, and vice versa, calling a mobile station from local home telephone network terminals), connecting to the integrated services network (ISDN - Integrated Services Digital Network), connecting to the Internet and Intranet networks, linking with existing analogue radio-telephone networks, and finally, recording and subsequently listening to their radio-telephone traffic in the system.

Unlike mobile phones, Tetra radiotelephones work even when connections are interrupted, the radio network is broken, the control board is destroyed. Then the base station that serves the zone switches to the local mode of operation and ensures that communication in that area is smoothly done. Even in case of a base station destruction, users who are not too far can communicate if the radiotelephone is used as a streaming channel.

The elements of the TETRA system are so designed that they can be completely non-public from power supply because they have their own power supply and a wireless link, and as such have full autonomy and independence in operation.

Research has shown that major cancellations of telecommunications networks caused by overloading, power failure or the destruction of base stations (the terrorist attack in New York in September 2001, the Finnish bomb in October 2002, the floods in France in January 1999, the fire in the Netherlands in January 2001), could have avoided if TETRA were to be used. Where Tetra had already been used, network failures were not available or the recovery time was relatively short.("ETS 300 392-1: Radio Equipment and System", 1996)

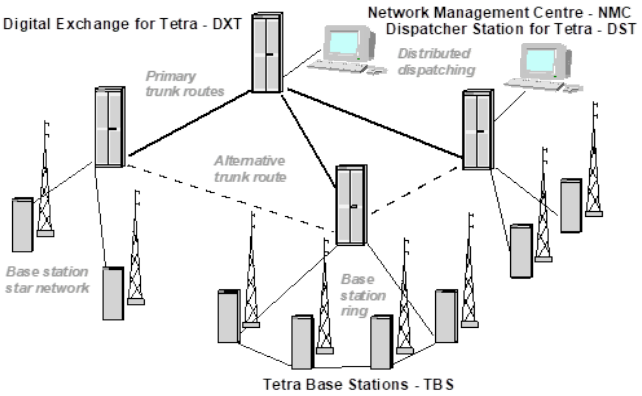


Figure 3. *Block diagram of TETRA system*

LTE (Long Term Evolution) is a new standard for the fourth generation of mobile broadband (4G), which is a solution to support high-speed transmission. Evolution to LTE technology means reducing the number of network elements in order to achieve the greatest simplicity of network architecture and the development of broadband applications for the needs of security services, state authorities and public enterprises.

3GPP (Third Generation Partnership Project) has introduced LTE technology developed as an enhancement to the existing third generation 3G UMTS (Universal Mobile Telecommunications System) Terrestrial Radio Access, and today it is part of the 3GPP RealEse 8. LTE is a new standard of mobile communications not only for radio network, but also for core architecture, SAE (System Archictecture Evolution). With WiMAX(Worldwide Interoperability for Microwave Access), LTE has the advantage of relying on existing GSM (Global System for Mobile communication)and 3G infrastructure, allowing higher flow rates and increased spectral efficiency with significant reliance on MIMO (Multiple Input Multiple Output) techniques. WiMAX has adopted and improved the principles of spectral flexibility and a complete reliance on IP (Internet Protocol) transport.(„CEPT Report 40", 2010)The emergence of LTE technology has led to a clear evolution of mobile systems, and its development contributes to the significant advancement of next-generation mobile broadband.

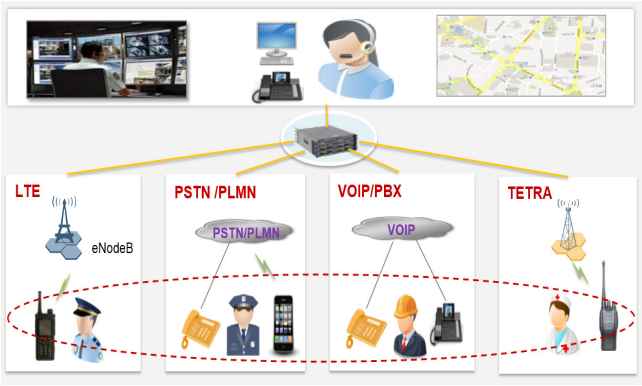


Figure 4. *Interconnection of various telecommunication networks*

LTE PPDR (Public Protection and Disaster Relief) radio-communication systems have the following objectives:(Dahlman,Parkvall&Skold, 2011)

In defining the LTE network of the Ministry of Internal Affairs, it has been tending not only to better performance, which is primarily reflected in considerably higher access speeds than overall improvement of the network, from increased RF (Radio Frequency)spectrum utilization, simplified system design to high economic efficiency.

- providing radio communications that are vital to achieving:
  - maintenance of law and order;
  - Response to emergency situations and protection of life and property;
  - Response in crisis situations.
- providing services across a wide range of geographical coverage areas, including urban, suburban, rural and remote environments;
- assistance in providing future advanced solutions requiring high data rates, video and multimedia, especially in the case of "Day to Day" (PP1 - Public Protection1), the provision of public events (PP2) and major crisis situations (DR - Disaster Relief) ;
- supporting interoperability and internal work between networks, both nationally and for cross-border operations, emergency situations and recovery from natural disasters;
- a permit for international work and roaming of mobile and portable units;
- ensuring the efficient and economical use of the radio-frequency spectrum, which is in line with the provision of services at an affordable price;
- encourage cooperation between countries to provide efficient and adequate humanitarian assistance during crisis situations;
- supporting the needs of developing countries, including a lower cost of costly design

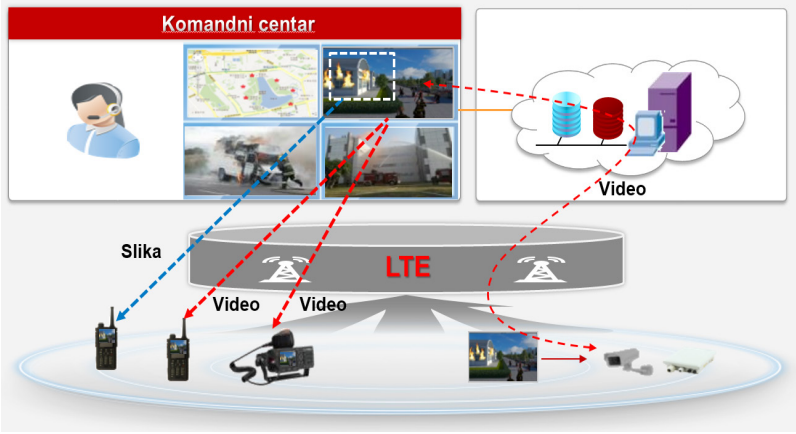


Figure 5. *LTE services with PPDR service*

PP1 (day-to-day business) (PP1) include routine operations that are carried out within their jurisdiction. Typically, these operations are within national or, if necessary, regional boundaries. These operations can be critical or non-critical missions. Most of the "day to day" operations are minimal for DR.

PP2 (large emergency / public events) are those for which PP and potentially DR agencies react in a particular area of their jurisdiction. The size and nature of events may require additional resources from neighboring jurisdictions, cross-border bodies or international organizations. For example, a large fire that involves 3-4 blocks in a large city (eg New York, New Delhi) or examples of a large forest fire are according to this scenario. Also, there can be

example large public events (national or international) such as government heads of government, the G8 summit, the Olympics.

DR (Disaster Relief) can be caused by a natural or human factor. For example, natural disasters include earthquakes, floods, and so on. Examples of human-induced disasters include large-scale criminal or armed conflict situations.

CONCLUSION

Modern information and communication technology require mobility at any time and any place. The work of security structures requires a different approach in order to respond to all security risks, both in daily work and in emergency situations, especially in conditions of natural disasters. A different approach is reflected in a more efficient and faster response in all situations in the operational and planned operation of security structures.

The integration of fixed telecommunication systems of certain holders (EPS, EMS, Serbian Railways, etc.) is very important in order to achieve communication in emergencies, and this is exactly the option provided by TETRA and LTE systems.

The previous experience in providing radiocommunications through the radio network (TETRA network of the Ministry of Internal Affairs of the Republic of Serbia) has shown that reliable and secure mutual communication in all operational tasks is a prerequisite for the improvement, efficiency and fast functioning of all security structures in the Republic of Serbia (MoI, BIA – Security Agency of the Republic of Serbia, Communal Police, Ministry of Justice, etc.). Also, the list of participants in emergency situations is expanding, so that EPS is a very important participant, since today the disappearance of electricity is also considered an extraordinary situation (the situation that in one city there is no electricity for several days, etc.). Modern functional systems of security services have great resistance and flexibility and as such are very suitable for emergency work.

With the development of new and modern technologies, as well as the daily use of various smart devices and equipment, police officers (as well as all other security structures) have fully expanded the requirements and needs within their activities and competencies, all for the sake of efficiency and security of all line of work within the MoI.

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APPLICATION OF MODERN TECHNOLOGY IN PREVENTING AND COMBATING ORGANIZED CRIME

Yanling Wang
Criminal Investigation Police University of China, Shenyang, P. R. China

Abstract: Handwriting identification is involved in many cases that have relationship with organized crime. The types of cases covered are: one is the abduction of women in prostitution, the second is the bullet, ivory trafficking by mail; the third is altering the amount of cheque and the forth is forging seals; the fifth is electronic products smuggling through customs. The features of cases are great concealment, multinational, occupation, specialization. Present situation of the fight against organized crime in China. In order to combat organized crime, China has established the corresponding work mechanism. In order to effectively curb and guard against transnational organized crime, Chinese police and judicial departments have strengthened criminal judicial cooperation in Hong Kong, Macao, and Taiwan regions at the same time, strengthening exchanges and cooperation with international organizations and relevant countries, and signed a bilateral and multilateral treaties on mutual assistance in criminal matters with related countries, actively participating in the fight against international treaty of organized crime, strengthening coordination and cooperation with the United Nations agencies, the International Criminal Police Organization. In December 9, 2002, the Chinese government signed the Firearms Protocol. The necessary measures that should be taken are: introducing the concept of organized crime in the Chinese Criminal Law - a major priority; strengthening the supervision of network shopping; secret control of communication, mail, telegraph and telephone; rewarding of informers, the protection of witnesses and experts in identification.

Keyword: s modern technology, combat, organized crime

INTRODUCTION

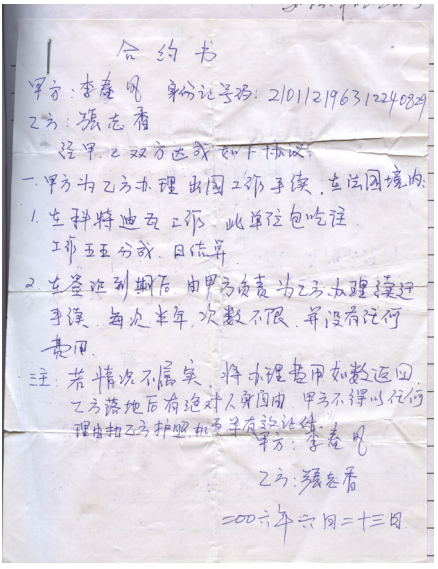
As the most advanced form of organization in the field of the crime, organized crime has been a great threat to national security and the rule of law and order. It not only causes corruption, it causes damage to the development of economy, but it is also a threat to national security, even the safety of the citizens. Related to the document examination, many cases have relationship with organized crime.

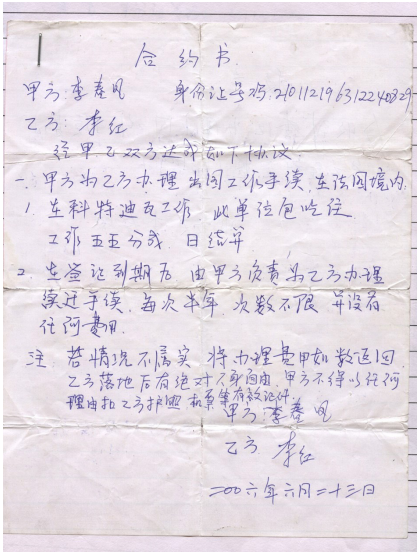
THE MAJOR TYPES OF ORGANIZATION CRIME INVOLVED IN DOCUMENT IDENTIFICATION

In the case of handwriting identification, many cases have relationship with organized crime. The types of cases presented include: one case of the abduction of women in prostitution, the other is firearms ivory trafficking by express mail; the third is altering the amount of cheque and the forth is forging seals; the fifth is electronic products smuggling through customs.

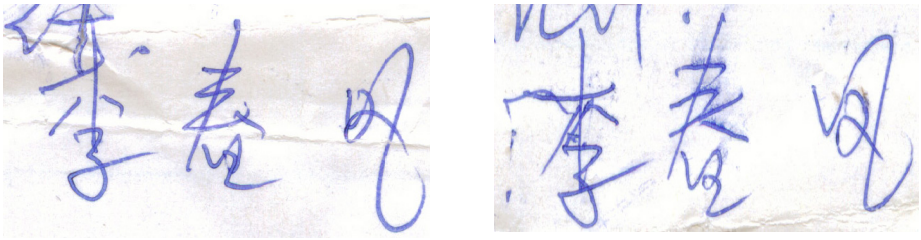
Many organized crimes are involved in handwriting identification, such as the abduction of women in prostitution.

There is a clear division of labour among the organization members. Some people are responsible for affairs abroad, some people are responsible for looking for females in the domestic territory, and others are responsible for transportation. In order to attract women to work abroad, the suspects trick them in the name of massage, recruitment, and higher salary. Both sides sign the "contract" or treaty. The agreement includes that the first party should help dealing with the formalities of going abroad, providing room and board, providing work, ensuring personal freedom. If the situation is not true, the first party will return all the costs. Both sides sign their signatures. When the female goes abroad and finds that the plan is not true, then flees back home, and sues the first party. The signature of the first party needs to be identified.


合约书
甲方：李春风 身份证号码：210112196312240829
乙方：张志香
经甲乙双方达成如下协议：
一、甲方为乙方办理出国工作手续，在法国境内：
1. 生科特迪克工作，此单位包吃住
工作五五分成，日结算
2. 在签证到期后，由甲方负责为乙方办理续迁手续，每次半年，次数不限，并没有任何费用。
注：若情况不属实，将办理费用如数返回
乙方落地后有绝对人身自由，甲方不得以任何理由扣乙方护照和签证等有效证件。
甲方：李春风
乙方：张志香
二〇〇六年六月二十三日


合约书
甲方：李春风 身份证号码：210112196312240829
乙方：李红
经甲乙双方达成如下协议：
一、甲方为乙方办理出国工作手续，在法国境内：
1. 生科特迪克工作，此单位包吃住
工作五五分成，日结算
二、在签证到期后，由甲方负责为乙方办理续迁手续，每次半年，次数不限，并没有任何费用。
注：若情况不属实，将办理费用如数返回
乙方落地后有绝对人身自由，甲方不得以任何理由扣乙方护照和签证等有效证件。
甲方：李春风
乙方：李红
二〇〇六年六月二十三日

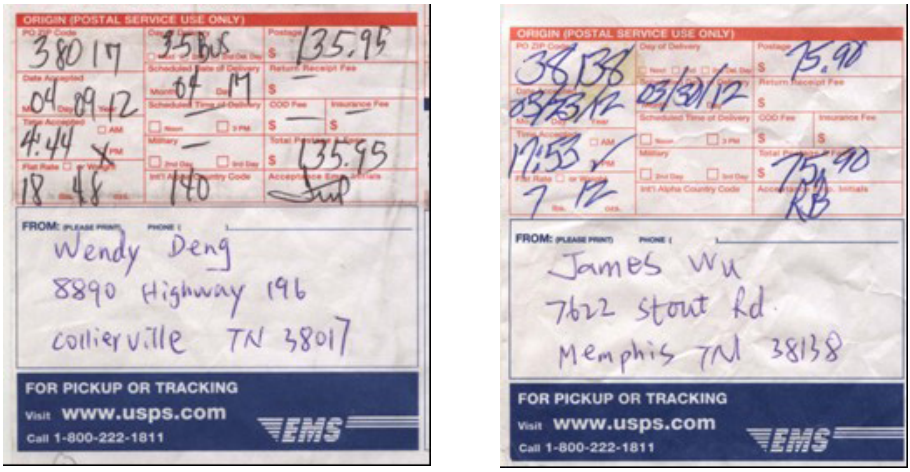
1.1.1 The two agreements signed by both sides.



1.1.2 The signatures of "Li Chun Feng" needs to be identified

Some organized crimes involved in English and digital identification, such as the firearms ivory trafficking by mail.

Usually some people with higher education background have more opportunity to go aboard. Firearms are available in some countries and easy to be obtained. They traffic firearms parts and ivory by express mail to domestic territory. Domestic staff sell firearms parts and ivory to other people at higher prices through the network. When the mail is found illegal, the handwriting on express mail needs to be identified.

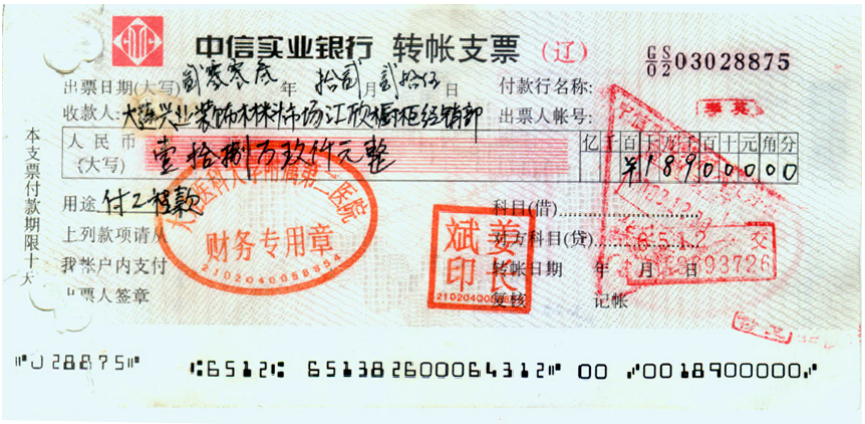


1.2.1 The handwritings on two express mails need to be identified

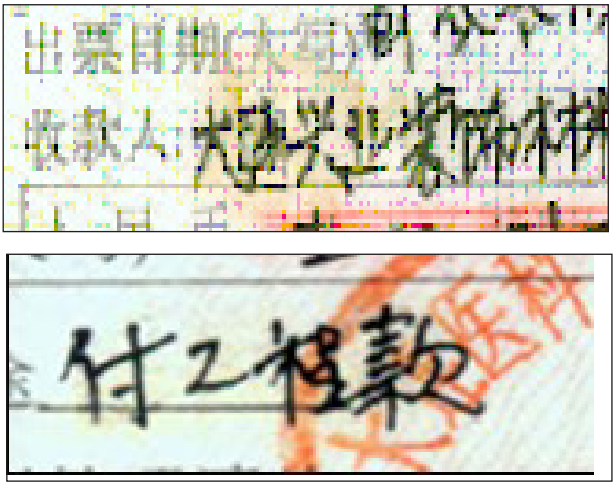
Many organized crimes involved in printed documents identification, such as cheque fraud.

Some suspects often obtain checks by selling goods or signing several smaller contracts with companies firstly. Some illegal workers are responsible for processing checks by scraping away or extinction method. Others are in charge of taking money from bank. After being altered, the amounts of checks were bigger than the original. That is to say, these companies

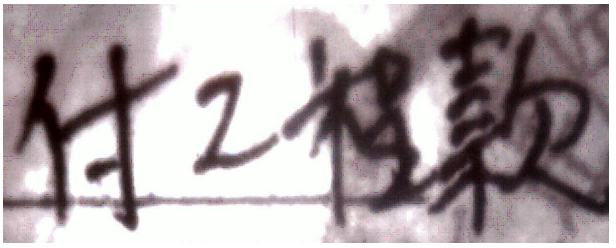
have to pay more money than expected. Some cheques need to be tested when the victim companies find the fact.



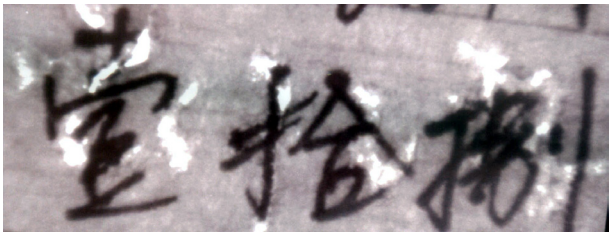
1.3.1 A cheque needs to be tested whether the cheque was altered.



1.3.2 The apparent mark of fade is the colour of certain parts of the check is yellow.



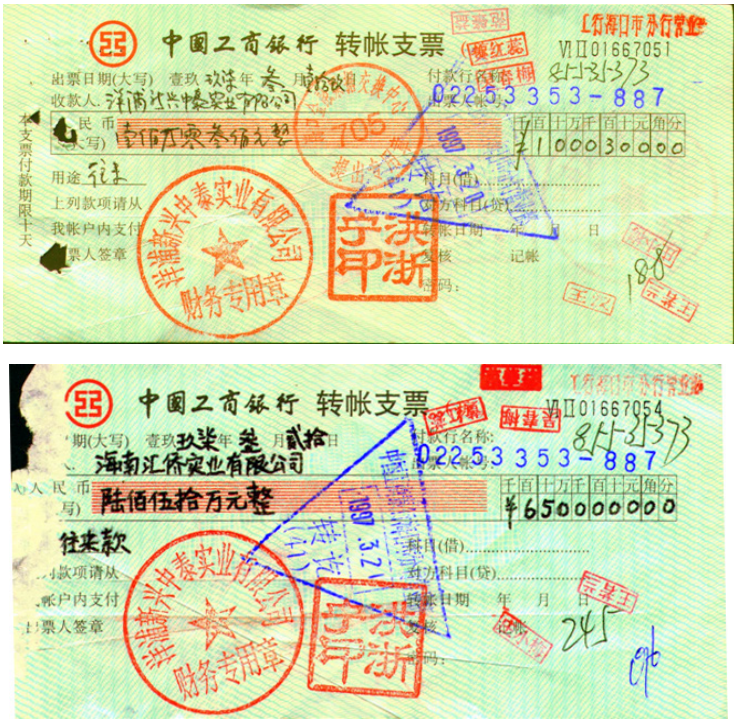
1.3.3 Fluorescence test result shows that the fluorescence intensity of the dissipated position is different than in other parts.



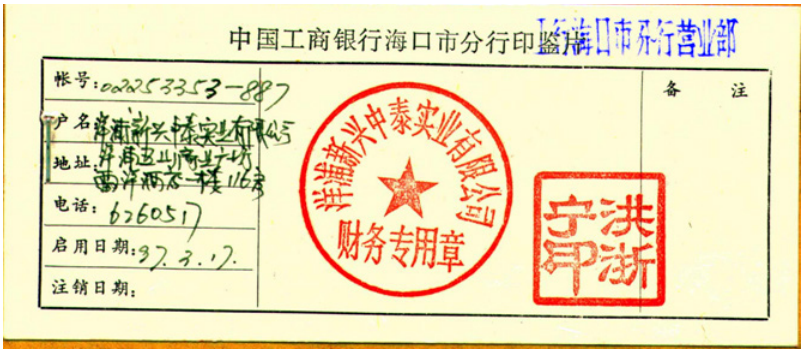
1.3.4 The transmitted light inspection resolution
readout the original Chinese character "1000RMB" which was scraped off.

Many organized crimes involved in seal identification, such as seal fraud.

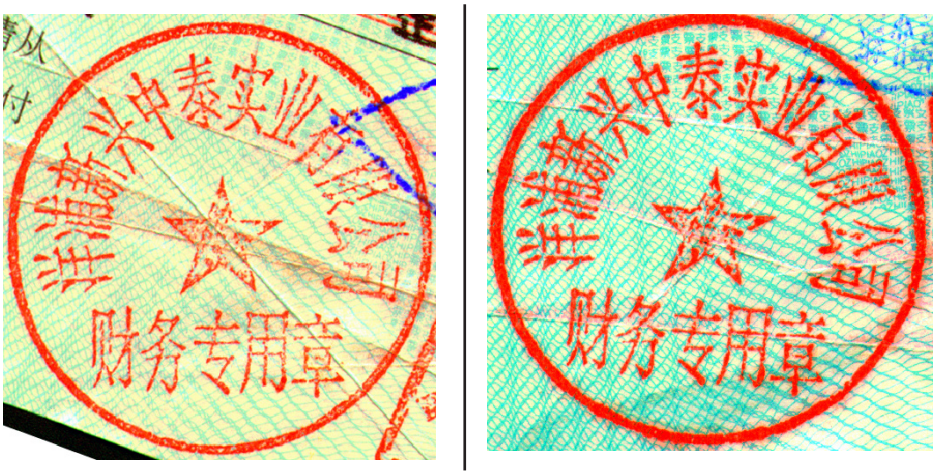
Some companies store millions of funds into banks. Illegal workers transfer these funds into their own accounts privately without the permission of these companies. The owners of these companies call police when they find funds missing. These transfer cheques need to be examined. Under these circumstances, company seal and personal seal reserved in the bank are essential for comparison.



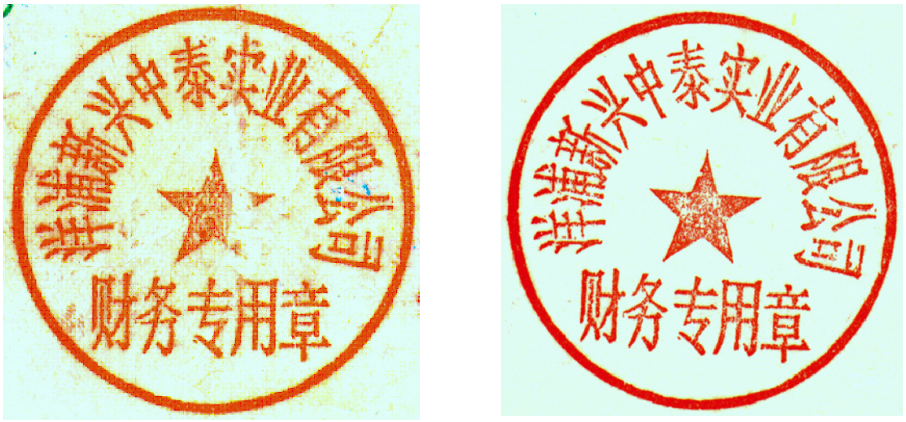
1.4.1 These transfer cheques need to be examined.



1.4.2 The company seal and personal seal reserved in the bank are essential for comparison.

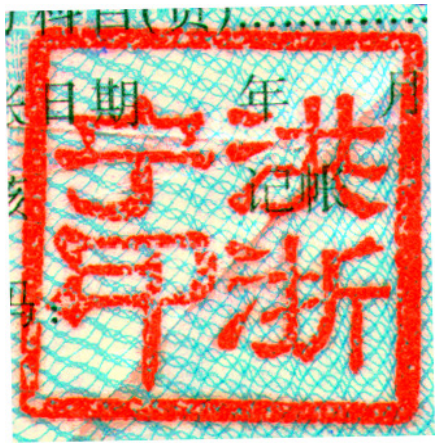


1.4.3 The unknown company seals do not have some marks.



1.4.4 There are some marks on the true company seals.





1.4.5 The unknown company seals do not have a red dot mark.





1.4.6 There is a red dot mark on the two true personal seals.

We found that some bank staff afford the real sample of company seal and personal seal to the suspects. The suspects made false company seal and personal seal and transferred money privately. The bank staff and illegal workers cooperate with each other with a due division of labour. Secret marks or some characteristics of real seals are the most important for examination or identification.

Many organized crimes engaged in electronic products smuggling through customs.

Smuggling disturbs foreign trade and economic order and endangers national security. Some people were smuggling in Hong Kong and Shenzhen through Fu Tian Bonded Area. They were suspected of smuggling goods from Hong Kong to mainland China and then

charging shipping fees to mainland buyers who had ordered these goods. The goods included new or used cell phones, tablet computers and hard disks that were purchased at low prices in Hong Kong. By doing so, the suspects evaded huge amount of duties. Investigators observed container truck and found the floor of the container was made of wood planks. Concealed under the floor was a secret compartment formed by steel frames. In addition, there were also electric drills and other tools to dismantle the secret compartment.



1.5.1 The suspect container contains smuggling products from Hong Kong to mainland China.



1.5.2 Electronic products were stored in a secret compartment under the floor of container

THE CHARACTERISTICS OF CASES CONNECTED WITH ORGANIZED CRIMES

Accompanied with the changes and development in political, cultural and economic areas, the types of organized crimes have been upgraded variously. Recently, in mainland China, the new organized crimes are manifested by the following characteristics of cases connected with organized crimes, that is to say, great concealment, intelligence, high-tech trend and multinational.

Great concealment

The form of organized crime is very subtle. Some members are relatives. They join the organization through the familiar person. They communicate with each other by mail, telegraph and telephone, text messages, internet, etc. It is not easy to be aware of outsiders, also easy to reach consensus. Most people of the smuggling group are family members, who lived together and imitated each other's handwriting. As a result, there is a high similarity between their handwriting, which increases the difficulty of handwriting identification.

In "HS10" cross-border smuggling case, six illegal workers are brothers or cousins among 18 person. Mainland buyers came from Chaozhou and Shantou, Guangdong Province, China. They speak in Chaozhou and Shantou sub-dialect and it is difficult to understand by others.

In "HS10" cross-border smuggling case, on 9 May 2013 1:00 AM, investigating officers followed the target — a container truck with license plate number of "Guangdong-BM8335" — to Changyuan Village of Nanshan District in Shenzhen City, and seized some electronic products, including new and used cell phones and hard disks. Investigators conducted an observation of the truck and found that the floor of the container was made of wood planks. Concealed under the floor was a secret compartment formed by steel frames. In addition, there are also electric drills and other tools to dismantle the secret compartment.

Investigating officers found that suspects first registered a logistics company in Hong Kong to receive goods. Then they bought two tatty containers and designed a 15-cm high secret compartment in each container. They loaded goods into the secret compartment in Sheung Shui freight yard in Hong Kong, floored the compartment with composite wood and tightened screws. Employees of a logistics company in Futian Bonded Area, already being bought off, were responsible for customs clearance, confirming the freight handling and container storage in Futian Bonded Area, and arranging trucks of the mainland to transport the container out of the Bonded Area. By declaring an empty container, cell phones, tablet computers, hard disks and other goods stored in the secret compartment were successfully transported into Shenzhen through Futian Bonded Area. Then relevant people opened the secret compartment with electric drills, offloaded smuggled goods in a secluded place, and contacted buyers to take away their goods. After the transaction was completed, the smuggling group laid the floor again. The smuggling group developed a chain of purchase, transport and selling.

Intelligent and high-tech trend

In order to change the number or amounts of the checks, illegal workers use chemistry methods to deal with the documents. With the development of technology, people are bright-

er than ever. All kinds of methods are used to commit crimes. Intelligent and high-tech trend has become increasingly evident. On the other hand, it is more difficult to combat organized crimes. That is the dilemma that police have to face.

Some organized crimes are multinational.

With the development of opening-up policy, multinational trade has become increasingly trade forms. In order to change the living conditions, the unemployed in the city and the floating population go abroad. They are facing pressure to survive the marginalized, although rapid changes in strong motives of their own survival, but the lack of the basic conditions for legitimate competition or appropriate opportunity, and through participation in organized crime form to gain wealth and satisfy the need of sense of belonging to a group have become part of people's conscious choice. When the dream is broken, they commit crime for the sake of comfort enjoyment and to pursuit excellent living. Organized crime normally involves a large amount of money and brings a wide range of social impact. It has become one of the serious financial crimes in mainland China. Over years, cross- border and transnational organized crime, such as the abduction of women in prostitution, the bullet, ivory trafficking by mail and credit card crime, have been on the rise in mainland China, which adds to the difficulties in collecting evidence and capturing the offenders.

PRESENT SITUATION IN THE FIGHT AGAINST ORGANIZED CRIME IN CHINA.

In order to combat organized crime, China has established the corresponding work mechanism. In order to effectively curb and guard against transnational organized crime, Chinese police and judicial departments have strengthened criminal judicial cooperation with Hong Kong, Macao, and Taiwan regions, at the same time, strengthening exchanges and cooperation with international organizations and relevant countries, and signed bilateral and multilateral treaties on mutual assistance in criminal matters with related countries, actively participating in the fight against international organized crime, strengthening coordination and cooperation with the United Nations agencies, the International Criminal Police Organization. On December 9, 2002, Chinese government signed the Firearms Protocol.

NECESSARY MEASURES SHOULD BE TAKEN TO COMBAT ORGANIZED CRIME

In view of these societal challenges, the methods of combating crime should experience critical changes in order to improve the effectiveness and efficiency of the current resources available [1]. It is a systematic work to effectively combat and prevent organized crime, which not only requires staff in relevant departments to improve their prevention awareness and capability of providing due responses, but also needs a multiple-agency efforts to reduce the opportunities for the criminals.

Introducing the concept of organized crime in Chinese Criminal Law - a major priority.

Organized crime has been claimed to be one of the world's three major crime disasters, becoming major issues of particular concern for crime prevention in the world. In order to prevent and fight organized crime effectively, China should introduce the concept of organized crime into Chinese criminal law. In the course of criminal justice, judges and the relevant officials can sentence the suspects according the law.

Financial institutions should improve the effective management system

There should be strengthening of the financial bill management of financial, taxation, banking, securities, trade and other professional fields. These fields accumulate huge amounts of money and run the risk of economic crime. Financial institutions should manage various important blank vouchers strictly, especially customer signature cards. On the other hand, these fields involve the emergence of corruption. Financial institutions should further build up privacy policy on customer's information, enhance the ethical and disciplinary education for their employees, and strengthen their professional responsibility, so as to avoid misusing and compromising customer's personal information from their employees [2].

Enterprises should establish an awareness of financial risk, take effective measures and avoid becoming victims of financial crime.

Enterprises should manage the financial information strictly. Enterprises should reconcile with the bank every day, find problems timely and make minimum losses of illegal crime. Additionally, financial institutions should be equipped with advanced technical supports to reduce the inherent risks of being forged, with developed technical prevention systems with advanced alerting system, dynamic coding system, identifying system, funds-move tracing system, automatically conducting system, etc. to raise the defence ability of illegal crime. Moreover, nationwide computer network should be able to make it possible to share the information among all the financial institutions, and to identify the new criminal trend and characteristics all over the country.

The secret control of communication, mail, telegraph, telephone and network.

Communication, mail, telegraph and telephone are the main communication ways and means. The police should strengthen the effective supervision of communication, mail, telegraph and telephone. Only in this way can we grasp the information timely, form an integrated force to fight organized crime, improve the level of the fight against organized crime.

In "HS10" cross-border smuggling case, the Anti-smuggling Bureau of Shenzhen Luo Hu Customs grasped many pieces of evidence. Evidence includes text messages extracted from suspects' cell phones, text messages extracted from buyers' cell phones, information extract-

ed from buyers' laptops, transfer records of bank accounts associated with the case, border crossing records of suspects, testimonies of witnesses in Hong Kong and mainland China, etc.

The reward of informers, the protection of witnesses and experts majored in identification.

The informers are essential for fighting organized crime. The witnesses and the experts are important as the informers. We should strengthen the witness protection, witness system, assistance and protection of victims during the course of criminal justice. The special investigation system and judicial assistance and other aspects need to be perfected [3].

Take "HS10" cross-border smuggling case for example, in November 2012, the Anti-smuggling Bureau of Shenzhen Luo Hu Customs received a report from residents that Zheng Shao Xiong, Zhang Tao Gui and other people were smuggling in Hong Kong and Shenzhen through Fu Tian Bonded Area. They were suspected of smuggling goods from Hong Kong to mainland China and then charging shipping fees to mainland buyers who had ordered these goods. The goods included cell phones, tablet computers and hard disks and could be purchased at low prices in Hong Kong. By doing so, the suspects have evaded huge amount of duties.

Sharing of resources.

We should strengthen international cooperation in the fight against organized crime through seminars, international conferences and professional training to assist in the investigation to carry out extensive exchanges and cooperation. Over years, cross-border and transnational organized crime has been on the rise in mainland China, which adds to the difficulties in collecting evidence and capturing the offenders. Enhancing international policing cooperation, therefore, not only facilitates law enforcement officers to conduct investigation, but also strengthens liaison and communication with the police officers from other countries as well. In the meantime, international cooperation widens the channels for exchanging ideas, and information sharing mutually assisting in case investigation, and most important of all, it is worth to learn advanced experience in combating and preventing organized crime from other countries to increasing the capacity of effectively reducing and curbing organized crime. Only in this way, can we form an integrated force to fight organized crime, and improve the level of fighting against organized crime.

As individuals, we should enhance the awareness of personal protection, establish the correct values.

People should be honest and faith, do not blindly believe in the so-called high salary, a rich mythology. Do not covet comfort and enjoyment, pursue excellent treatment and living conditions. The most basic condition is the realization of the education resources and fair educational opportunities. Enhancing information education and public awareness on security prevention all relevant departments should by all means fully employ mass media channels to strengthen anti- fraud information education, such as TV, broadcasting, newspaper, magazine, hand-out and poster, etc. In this way, the public will be given the knowledge of risks of credit card fraud crimes, the awareness will be cultivated of protecting personal informa-

tion, and be introduced to various techniques and approaches of recognizing and identifying fraudulent activities. Meanwhile, the public is encouraged to be active in cooperation and call for assistance when they encounter suspicious situations.

In the "HS10" cross-border smuggling case, the main suspect had been put into prison for six and a half years for counterfeiting money. He organized cross-border smuggling to earn a lot of profits after he was set free.

Analysing Physical Evidence Objectively, Examining and Comparing Carefully and Improving Basic Skills of Handwriting Identification

The key physical evidence of "HS10" cross-border smuggling case is a notebook with handwriting. In the arresting action, the task force found a notebook in Zheng Shaoxiong's home, which lists the electronic products received in Hong Kong and delivered to the mainland buyers, and money paid and received. The notebook indicates that from November 2012 to 23 May 2013, the amount of money involved in this case is RMB 250 million. Therefore, identifying who created the handwriting is crucial. The notebook may serve not only as the evidence of money transfer, but also the basis for the court to convict and sentence every suspect.

The disputed written documents are in a large quantity and various types. The notebook includes 124 pages and contains Chinese characters, numbers and English alphabets. There are 18 suspects and a large number of known writing samples, with both normal writing and disguised writing. The writing samples of 17 suspects after being arrested are normal, but the writing sample of Zheng Weilong was seriously disguised.

First, it had to be determined whether all the disputed documents were written by the same person. Examiners used the method for examining writing disguised by speed alternation and confirmed that all 124 pages of disputed writing were made in different colours at different times and writing speeds came from the same person. The differences in these questioned writing pieces are within the range of a person's natural variation due to changes in writing speed, rather than from different people.

Then the key suspects were to be determined. Looking at the handwriting skill level and the extent to which the writing was disguised, the examiners selected Zheng Shaoxiong and Zheng Weilong among 18 suspects as the key suspects, whose writing samples were to be compared. The examiners strove to find the characteristics from their writing samples, including interrogation records.

Comparing the questioned writing with Zheng Shaoxiong's sample. The questioned writing and Zheng Shaoxiong's sample are normal handwriting, therefore the examiners took the method for examining normal handwriting and mainly chose the writing characteristics from repeated characters.

Most people in the smuggling group are family members, who lived together and imitated each other's handwriting. As a result, there is a high similarity between their handwriting, which increases the difficulty of handwriting identification. Since the questioned writing and Zheng Shaoxiong's sample match in the characteristics such as writing skill level and shapes, and the absolute matches even exist, Zheng Shaoxiong was regarded as the key suspect after preliminary examination. This is also the reason why the Forensic Examination Centre of Shenzhen Customs concluded the questioned writing was created by Zheng Shaoxiong. Upon

further examination, the examiners found that the value of these matching characteristics was not very high. They were just similar, but created by different people.

There are identifiable differences in the characteristics such as the stroke order, proportion of characters, pen direction, connecting strokes, and the pen pressure between the questioned writing and Zheng Shaoxiong's sample. These differences reflect the writing habits of different individuals. This is the basis for the Shenzhen Public Security Bureau to conclude the writing was not from Zheng Shaoxiong.

Comparing the questioned writing with Zheng Weilong's sample. The questioned writing is normal writing, and Zheng Weilong's sample is disguised writing by reducing writing speed. Therefore, examiners took the method for examining disguised handwriting to compare the questioned writing and the sample. If the handwriting is disguised by deliberately reducing the writing speed, the examiners should identify the characteristics from characters that were written relatively rapidly; if the handwriting is disguised by increasing the writing speed, the examiners should focus on the characters written relatively slowly.

The examiners have identified the obvious differences in the writing skill level, shape and other characteristics between the questioned writing and Zheng Weilong's sample. But they are a consequence of the writer's deliberate slowing down of writing speed, rather than writings made by different people. The questioned writing and the sample match up closely in some characters, stroke order, proportion of characters, pen direction, connecting strokes, pen pressure, etc. These matching characteristics sufficiently demonstrate a writing habit of the same person. Through careful and meticulous observation and analysis, the examiners provided their opinion: the handwriting on the notebook is created by Zheng Weilong, rather than Zheng Shaoxiong.

In the "HS10" case, technical identification played a crucial role. Determination of the notebook's real writer by handwriting identification enabled the task force to readjust investigation direction and the Guangdong Shenzhen Intermediate People's Court to determine the guilt and sentences of the 18 suspects based on specific tasks each of them performed, time of joining in, the amount of tax evasion and fraud, etc. Zheng Shaoxiong was sentenced to eight-year imprisonment and a fine of RMB 7 million for smuggling ordinary goods. Zheng Weilong was sentenced to six years and six months imprisonment and a fine of RMB 3 million. Without the identification result, all the prior investigation efforts would be in vain.

In the examination process, the examiners should take a responsible and conscientious attitude, accurately identify the disguise in suspects' handwriting and ensure the identification result is precise and scientifically based. Even though the samples are disguised, the examiners should delve into the study to overcome the difficulties. In this case, the questioned writing is normal handwriting. Based on the nature of the samples, the examiners took different examination methods, which are manifested in selecting individualizing handwriting characteristics and comprehensive evaluation.

As for normal handwriting, the examiners should choose stable individualizing characteristics from repeated characters, the components and radicals to recognize the inherent writing habits. As for disguised handwriting by deliberately reducing the writing speed, the examiners need to choose the characteristics from places that are easily ignored and less disguised, so as to find the true writing habits of the writer.

In comprehensive evaluation, the examiners need to pay attention to the value of matching characteristics and the nature of differing characteristics. The questioned writing matches up with both Zheng Shaoxiong and Zheng Weilong's samples in some characteristics. Determining the value of matching characteristics, namely frequently occurred or occasionally occurred characteristics, is crucial for identification in this case. At the same time, there are

also differences between the disputed writing of Zheng Shaoxiong and Zheng Weilong's samples. Determining the nature of differing characteristics is very important, namely whether the difference is a result of natural variations in one person's handwriting or writings from different people.

Improving Evidence Awareness and Catching the Timing

As for smuggling cases concerning handwriting, after suspects are held in custody, the investigating officers should collect the writing samples of all suspects immediately, when the suspects do not have time to consider how to disguise their writing or have not realized to do so. Thus ideal writing samples can be collected. For a suspect having a criminal record, the investigating officers should go to the place where the suspect once served his sentence, to get his handwriting prior to the case. In this case, Zhen Shaoxiong's handwriting has been kept in Guangdong Wujiang Prison where he served his sentence for selling counterfeit money. But Zheng Weilong's disguise of handwriting after being arrested makes handwriting identification extremely difficult.

In the early morning of 23 May 2013, the Anti-smuggling Bureau of Shenzhen Customs started the "HS10" action, arrested Zheng Shaoxiong and other criminal suspects, and seized some physical evidence and documentary evidence, including hard disks, the defendants' cell phones, account book, laptop, bank card, etc. The investigation of this case took 18 months, 20 people were found to be involved in the case, among whom 18 mainland suspects have been arrested and two Hongkongers were handled separately. "HS10" case is very rare in China, given the huge amount of money and large number of people involved, extensive areas covered and the difficulty to investigate.

Establishing a Chain of Evidence

Gathering, examination and ascertainment of evidence of organized crime is very important [4]. The key physical evidence of this case is the handwriting identification opinion. Other pieces of evidence include physical evidence such as cell phone, tablet computer and hard disk, text messages about brands, quantity and price of electronic products between members, documentation of observations and inspections, examination of electronic physical evidence, identification documentation, tax verification by customs, witness testimonies, etc. The evidence corroborates each other and forms a chain, based on which the judgment of this case has been made.

CONCLUSION

The capability of forensic sciences to fight crime, especially against organized criminal groups, becomes relevant in the recent economic downturn. The Chinese government is fully aware of the dangers of organized crime. It is also taking many forms to combat organized crime. Through effective exchange and cooperation, China has made great achievements in preventing and combating organized crimes. Science and technology play a role in this process. With the development of science and technology, China's anti-organized crime work will achieve more effective results.

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Topic VI

INNOVATIVE METHODS IN FORENSIC SCIENCE

ASSESSMENT OF AIR POLLUTION DISTRIBUTION FROM RADIOACTIVE SOURCES AND ITS IMPACT ON HUMAN HEALTH

Aleksandra Vulović
Venezija Ilijazi
Stevo Jaćimovski[1]
University of Criminal Investigation and Police Studies, Belgrade

Jelena Lamovec,
Institute of Chemistry, Technology and Metallurgy, Belgrade

Abstract: The paper assesses the concentration of gas aerosols produced as a result of radioactive sources emission. A Gaussian diffusion model is used for calculation of the particle concentration, and the Cs_{137} isotope is taken as an example of the particles. The determination of the dispersion parameters used in the Gaussian model will be carried out using the Pasquill-Gifford and Briggs' method. Based on calculated concentrations of radionuclides, their impact on human health will be analyzed.

Keywords: radioactivity, Gaussian model, Air pollution

INTRODUCTION

The aim of the paper is to analyze the distribution of radioactive admixture from a point source and to point out to its impact on human health. This is especially significant in light of the fact that our country was exposed to the uranium depleted missiles, which is the source of radioactive radiation, in the armed action of the NATO Pact in 1999.

Discharging hazardous substances into the atmosphere, whether accidentally (due to human negligence, plant failures, natural disasters, mistakes in the transport of dangerous goods) or deliberately (in terrorist attacks) pose a great danger to the population and infrastructure.

The problem of air pollution is a global problem as it affects practically all countries in the world, i.e. all their regions, settlements, socioeconomic and age groups. Air pollution is the biggest threat to environmental protection and is responsible for one in nine deaths per year, which is about 3 million people each year (Neira, 2016). It can be said that air quality represents a marker for the sustainable development of the society. It is therefore necessary to get to know the basic characteristics of the atmosphere and the elements that reach it.

The atmosphere surrounds our planet and extends practically infinitely. In a layer of 5 km there is about 50% of all air, and about 90% of the total air in the layer up to 20 km. The atmosphere is exposed to the influence of thermal solar radiation and, therefore the air tempera-

1 Corresponding author: stevo.jacimovski@kpa.edu.rs

ture in the atmosphere is inhomogeneously distributed. According to the temperature change with height, the atmosphere is divided into 5 characteristic layers. From the standpoint of atmospheric diffusion of the admixture, the most significant layer is up to a height of 11 km, which is called a troposphere.

The temperature drops in that layer as it moves away from the earth's surface, by approximately 0.65 ° C for every 100 m. If it is assumed that the temperature is 15 ° C (288 ° K) at sea level, then the temperature at the outer limit of the troposphere is -56 ° C (217 ° K). Above this layer at a height of up to 40 km there is a stratosphere in which the temperature does not change with height. About 75% of the total air volume of the atmosphere is located in the troposphere. Thermal, hydrodynamic, chemical, photochemical, electromagnetic and other processes continuously flow in the atmospheric air thus determining the temperature, pressure, speed of movement, and chemical composition of the air masses.

The basic amount of admixtures in the atmosphere is, by their composition, divided into gaseous, solid and liquid substances. Thereby, gaseous substances (carbon dioxide, sulfur dioxide, hydrocarbons, nitrogen oxides, organic compounds) make up about 90% of the total. The amount of solid substances (dust, heavy metals, radionuclides, mineral and organic compounds) accounts for about 10% of the total. Mass of liquid substances, such as, for example sulfuric acid is negligible in the first two categories. The lifetime of the most important gaseous substances (types of nitrogen oxides and sulfur dioxide, as well as the products of their reactions, e.g. SO_4, NO_3...) is from several hours to several weeks. During the time when these admixtures move from the source to the moment they settle down on the surface of the earth, they cross the distances from ten to several hundred meters. The deposition of the admixture can be dry or damp.

Aerosols or solid admixtures are divided according to their radius into: microscopic ($r < 0.1$ μm), medium ($r = 0.1$-1μm) and large ($r > 1$μm).

RADIOACTIVE ADMIXTURES

The paper will consider the impact of radioactive substances on the atmosphere and their impact on human health in particular. The basic difference between the impact on the living world of radioactive substances and chemical substances is that chemicals act directly and proportionally to the amount of substance in the body, while radioactive substances have additional effect due to the radiation of ionizing radiation both directly and remotely.

There is a natural radioactivity in our environment. It occurs with spontaneous disintegration of radioactive nuclei-radioactive nuclei-transformation into other nuclei with accompanying ionizing radiation. In most cases, the decay is accompanied by the emergence of the so-called radioactive series. The disintegration ultimately ends with the formation of stable nuclei. Depending on the core decomposition scheme, there are simple (linear) series and complex series (scheduling). The percentage of the transformation of the parent radionuclide into the nucleus of the daughter is defined by the branching coefficient. All known radioactive nuclei are combined with an isobaric sequence with a mass number A = 166. The constant of radioactive decay is $\lambda = 0,693T_{1/2}$ where $T_{1/2}$ is the period of half-life. The law of radioactive decay in the function of time is given as (Marinkov, 1976)

$$N(t) = N(0)\exp(-\lambda t)$$

where $N(0)$ is the number of atoms at the initial moment. Equation of the equilibrium of nuclei in a radioactive nuclear series is a system of ordinary differential equations (Marinkov, 1976)

$$\frac{dN_i(t)}{dt} = -\lambda_i N_i(t) + \lambda_{i-1} N_{i-1}(t),$$

where N_1 is the number of the parent nuclei, and - the number of nuclei of the daughter nucleus. The activity of the source is. The SI unit of activity is Bekerel (Bq), which represents one decay in one second. The volume activity has a unit (Bq/m^3). Radioactive transformations are achieved by α decay, β- and β + decay, electron interaction and radiation of γ radiation. The largest number of radionuclides decomposes with β-decay especially radionuclides from the mass number $A = 72$ to the mass number $A = 166$.

Generally, radioactive admixtures get into the atmosphere from three basic sources:

1. from radioactive elements of the Earth's crust and their decay products (natural radioactivity)
2. from cosmos through the reaction of air with cosmic radiation
3. due to nuclear tests, a nuclear reactor

The main sources of radioactive admixtures are nuclear power plants, nuclear explosions trial, nuclear reactors, depleted uranium used in military missiles. The most dangerous to human health are radioactive substances with large periods of half-life. The most characteristic are ^{90}Sr and ^{137}Cs. Thanks to the clarity, ^{90}Sr is deposited in bone tissue, and ^{137}Cs are deposited in muscle tissue, replacing K.

The composition of radionuclides depends on the characteristics of the source (reactor) and the radiation characteristics of the products of fission and actinide. Inertial radioactive gases and isotopes of iodine play a major role in the formation of radiation regimes in some areas. As a rule, 18 isotopes of Krypton, 15 isotope of Xenon, 20 isotopes of iodine enter the composition of radionuclides formed as fragments of the reaction (Marinkov, 1976). Many of them have a small half-life period ($T_{1/2} < 1$ min) or enter a negligible small fraction into the total activity of the radionuclide of the given group. A group of long-lived fission products consists of ^{89}Sr, ^{90}Sr, ^{134}Cs, ^{137}Cs radionuclides, and also ^{95}Zr, ^{95}Nb, ^{141}Ce, ^{144}Pr.

Analyzing the effect of radioactivity on living organisms, it should be emphasized that radioactive radiation:

1. weakens the organism, reducing its immunity and slowing down its growth
2. reduces the reproductive ability of an organism, leading to temporary or permanent sterility
3. damages genes that occur in the second or third generation

The paper will particularly analyze isotope^{137}Cs and isotope ^{131}I. Nuclear waste consists of cesium 137. Its concentration of activity in the northern Earth hemisphere, especially in Europe, increased significantly after the Chernobyl disaster in 1986. It is known that ^{137}Cs is an artificial radionuclide which is formed by fission. It did not exist in nature before the start of nuclear tests and accidents at nuclear plants. According to some studies, the genetic risk of ^{137}Cs is the highest, so it is of particular importance to examine its migration and change the concentration of activity. Especially because the half-life of the other elements is from a few days to ten years, and all except the ^{137}Cs have generally disintegrated.

^{131}I is an isotope of radioactive iodine with a half-life of 8 days, with energy of 364 keV. It has accompanying negative β radiation emissions. The iodine- I^{131} isotope can in a short time, $T_{1/2} = 8.04$ days cause damage to the thyroid gland, and cesium ^{137}Cs affects genetic changes.

Meteorological factors play a major role in the processes of atmospheric pollution and the precipitation of radioactive pollutants. The degree of danger in a particular case of radioactive

pollutants emission depends on the meteorological situation at a given moment, while the potential danger of continuous radioactive substances being emitted into the atmosphere depends on the mean meteorological conditions of the given region and is estimated on the basis of the calculation of transport processes and the diffusion of radioactive substances in the given, concrete climatic conditions taking into account the thermal state of the atmosphere.

MODELLING OF AIR POLLUTION PROCESSES

Pollution concentration measurements provide important quantitative information on the state of air quality at specific locations at a particular point in time. They cannot point out the reasons leadingto air quality problems. For the measurement of the concentration of harmful gases a variety of physical, chemical, physic-chemical and electrochemical methods can be used. The limit values for concentration of hazardous gases at the site of the accident are determined by regulations. The measurement results can be presented in the form of a weight ratio of the dangerous substance and a gas volume unit, e.g. $\mu g/m^3$ or as a flow (mass of the dangerous component in the unit of time: mg/h, g/h and the like). To measure the emission of hazardous gases, continuous methods are used (continuous measurement over a longer period of time) and discontinuous (measuring the concentration of gases in a shorter time interval). Measurement is of great importance for determining the effect of concentration of hazardous gases on the health of the population and the environment (Nikezić, 2017).

The modeling of air pollution gives a complete deterministic description of the occurrence of the problem of air pollution, including the analysis of cause-and-effect relationships between different parameters (the number and spatial distribution of pollutant emissions sources, terrain topography around the source, meteorological conditions, such as wind direction and wind speed, stability of the atmosphere and temperature gradients, physicochemical changes of pollutants, etc.), as well as some guidelines on the application of pollution mitigation measures. The results of the applied model can help us assess the appropriate locations for measuring stations, for various legal, research or forensic applications.

Starting from the method of mathematical description of the substance dispersion process, three classes of the model for the analysis of air pollution can be distinguished: Lagrange, Euler and Gaussian. Lagrange and Euler methods belong to the class of deterministic models by which the concentrations of dangerous gases can be calculated by different methods of solving the equation of turbulent diffusion (Daly, 2007). Most software applications for assessing air pollution expansion, which are now used in practice, are based on the application of the Gaussian method, which belongs to the class of statistical models. Therefore, only the Gaussian model (Lazaridis, 2011) is presented in the paper.

GAUSSIAN MODEL

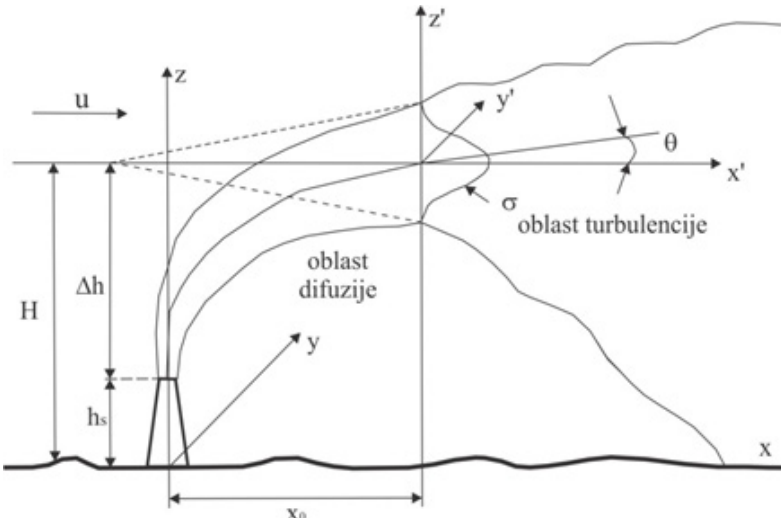
This paper discusses a point source that continuously emits radioactive substances in the atmosphere. According to Gaussian model, the concentration of an admixture at an arbitrary point of space for this case can be calculated as (Hanna, 1982):

$$C(x,y,z)=\frac{Q}{2\pi\sigma_y\sigma_z u}\exp(-\frac{\lambda x}{u})\left[\exp\left(\int_0^x\frac{dx}{\sigma_z\exp\left(\frac{H^2}{2\sigma_z^2}\right)}\right)\right]^{-\frac{\sqrt{2/\pi}}{v_d/u}}\times$$

$$\times\exp\left(-\frac{y^2}{2\sigma_y^2}\right)\left[\exp\left(-\frac{(z-H)}{2\sigma_z^2}\right)+\left(-\frac{(z+H)}{2\sigma_z^2}\right)\right]$$

Figure 1 Principal scheme of radioactive admixture scattering in the atmosphere

where the $C(x,y,z)$ is mean volume concentration of radioactive pollutants at point (x,y,z) in $\mathrm{Bq/m^3}$. Here, Q is the power of the source of pollutants in Bq, $u(\mathrm{m/s})$ is the wind speed, $\sigma_i(i=x,z,y)$ are the dispersion ratios of the pollutants in the appropriate directions, $\exp(-\lambda x/u)$ is the radioactive decay of the corresponding nucleotide, $v_d(\mathrm{m/s})$ the deposition rate of the given nucleotide, $H=(h_s+\Delta h)\,(\mathrm{m})$ the effective height of the source h_s (the height of the source, Δh the medium height of the flue gas perch). This relation applies in the case of a point continuous source,



when a dry deposition of radioactive pollutants is carried out, where a part of the pollutants are deposited on the surface of the earth, and the part reflects and returns to the atmosphere. Due to circulation of air masses, radioactive dust and aerosols spread to large areas and fall to the surface of the earth.

For a practical calculation of the ground-level concentration of the substance, it is necessary to determine the values of the coefficient of dispersion $\sigma_y(x)$ and $\sigma_z(x)$ as a function of the distance from the source along the wind direction, i.e. from x as well as from the condition of the atmosphere stability. There are several ways to determine them, but there is no universal method. As a rule, the method determines the target of the calculation. Most of the physics experts in the boundary layer of the atmosphere use the Pasquill-Gifford method. Another method which will be used in the work is the Brigs method. The formulas used for the

dispersion coefficients are applicable up to a distance of 10 km from the source, a 3 cm field relief for rural areas and 1 m for urban environments and a time of 1 hour from the emission of an admixture from the source. There are other methods, such as Irvin's, which will not be considered in this paper (Builtjes, 2010).

Pasquill-Gifford method

Analytic expressions for the dispersion coefficient based on the Pasquill-Gifford curve are (Lazaridis, 2016; Hanna, 1982):

$$\sigma_y = \frac{r\,x}{\left(1+\frac{x}{a}\right)^p}; \quad \sigma_y = \frac{s\,x}{\left(1+\frac{x}{a}\right)^q}$$

where the parameters r, s, p, q depend on the atmospheric stability class and are given in Table 1.

Table 1. Analytical expressions for dispersion coefficients according to Pasquill-Gifford

Stability class	A	B	C	D	E	F
r(m/km)	250	202	134	78.7	65.6	37
s(m/km)	102	96.2	72.2	47.5	33.5	2
a(km)	0.927	0.370	0.283	0.707	1.07	1.17
P	0.189	0.162	0.134	0.135	0.137	0.134
q	-1.918	-0.101	0.102	0.465	0.624	0.70

Briggs' model

According to the Briggs' model, the parameters of the dispersion coefficients are determined on the basis of Table 2.

Table 2. Analytical expressions for dispersion coefficients according to Briggs

Stabilit y class	A	B	C	D	E	F
$\sigma_y(x)$	$\frac{0,32x}{\sqrt{1+0,0004x}}$	$\frac{0,32x}{\sqrt{1+0,0004x}}$	$\frac{0,32x}{\sqrt{1+0,0004x}}$	$\frac{0,16x}{\sqrt{1+0,0004x}}$	$\frac{0,11x}{\sqrt{1+0,0004x}}$	$\frac{0,11x}{\sqrt{1+0,0004x}}$
$\sigma_z(x)$	$\frac{0,24x}{\sqrt{1+0,001x}}$	$0,24x$	$0,20x$	$\frac{0,14x}{\sqrt{1+0,0003x}}$	$\frac{0,08x}{\sqrt{1+0,00015x}}$	$\frac{0,08x}{\sqrt{1+0,00015x}}$

RESULTS OF THE EXPERIMENTAL EXAMPLE

For the analysis and the graph display of the reduced concentration of admixtures ($C_r = C / Q$) depending on the distance from the source along the wind direction (x), the following values of the parameters were adopted: $H = 21{,}5$ m , $u = 1{,}5$ m/s , $v_d = 0{,}35$ m/s and the atmospheric stability class D (neutral) was taken to determine the dispersion coefficients. The radioactivity constant ^{137}Cs is $\lambda = 7{,}32 \cdot 10^{-10}$ s^{-1}, and the iodine radioactivity constant is ^{131}I (Essa, 2005).

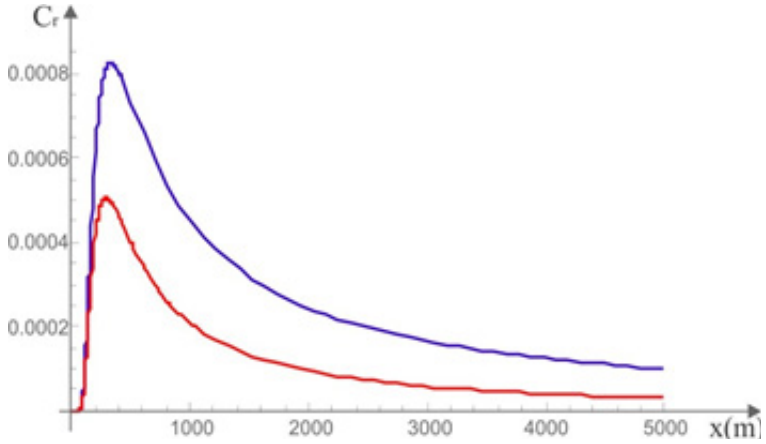


Figure 2 . Relative concentration for ^{137}Cs at different heights from the ground. The values z = 0 m corresponds to the red line, z = 50 m blue line, and z = 100 m corresponds to the black line

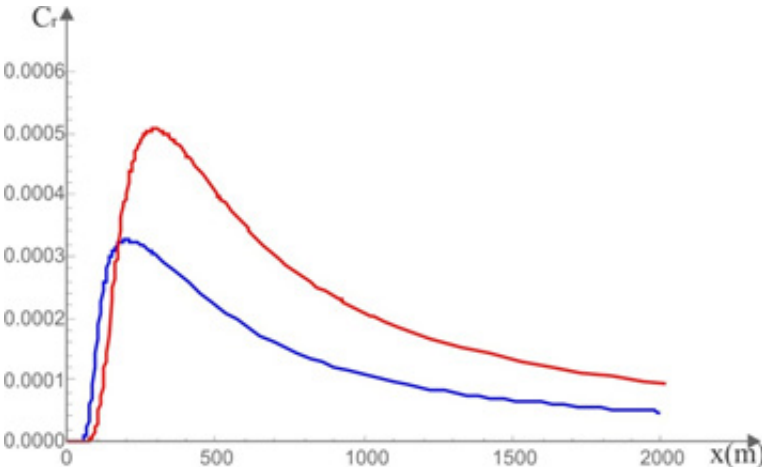


Figure 3. Relative concentration ^{131}I (blue line) and ^{137}Cs (red line) into the function of distance from the source

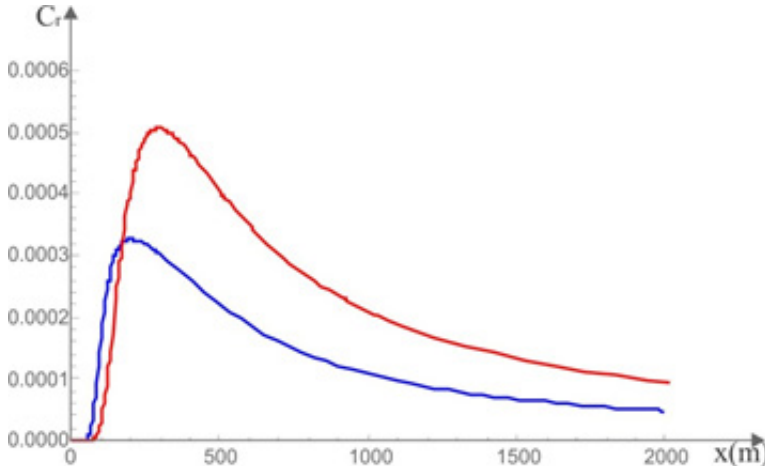


Figure 4. Relative concentration in the function of x-distance in case of the choice of dispersion coefficients by the Pasquill-Gifford method (red line) and the Brigs method (blue line) for ^{137}Cs

CONCLUSION

From the calculations and the attached graphics, it is clear that the concentration of radioactive admixture grows in the vicinity of the source of the emission, it reaches the maximum value at a certain distance and with the increase in distance it decreases.

Likewise, the ground concentration (z = 0 m) has a higher value than the concentration at the same distance at a height of 50 m, which again is higher than the concentration at a height of 100 m from the ground at the same distance (Figure 2).

Furthermore, it can be noticed (Figure 3) that the isotope concentration of iodine ^{131}I is greater than the ^{137}Cs concentration at the same distances from the source. This arises probably from the fact that the isotope ^{131}I has a shorter life time than the isotope^{137}Cs, which means that more particles disintegrate in the unit of time, i.e. have more activity.

If for the choice of dispersion coefficients for the same class of stability Pasquill-Gifford method is used, higher values of the relative concentrations of radioactive nuclei are obtained than in the case of using the Briggs' method.

All admixtures that pollute the air, in one way or another, have a negative effect on human health. These substances come into the body primarily through respiratory organs or food intake. Breathing organs are directly harmed as about 50% of the particles with a radius of 0.01-0.1 μm penetrate into the lungs and stay in them. Considering that light radioactive admixtures are maintained for about 2 years in the stratosphere, 1-4 months in the upper parts of the troposphere and 6-10 days in the lower troposphere and that the mean wind speed is 30-35m / s, it is clear that these admixtures cross large distances from their source. For human health, the most dangerous are radioactive substances with a large period of half-life. The most characteristic are ^{90}Sr and ^{137}Cs. Thanks to similarity to Ca, ^{90}Sr is found in bone tissue, and ^{137}Cs are deposited in muscle tissue, replacing K. Additionally, iodine ^{131}I due to a short

period of half-life is very dangerous for human health because it can damage the thyroid gland very quickly.

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ANALYTICAL TECHNIQUES FOR AMYGDALIN DETERMINATION IN FRUITS: CURRENT STATE AND TRENDS

Filip Babić
Nikola Milašinović[1]
University of Criminal Investigation and Police Studies, Belgrade

Jelena Kalajdžić
Biserka Milić
University of Novi Sad, Faculty of Agriculture, Novi Sad

Abstract: Cyanide has been used as a poison for thousands of years. Cyanides comprise a wide range of compounds of varying degrees of chemical complexity and toxicity, all of which contain a CN moiety. Humans are exposed to cyanides from a broad range of natural and anthropogenic sources. Plant toxins, such as glycosides, can be present in the whole plant or in seeds, fruits, leaves or stalks and may alter specific mechanisms involving enzymes, receptors and genetic targets in particular cells and tissues. Ingestion of food and beverages containing cyanide can cause serious health effects, while excessive ingestion of cyanogenic glycosides can be fatal. Some foodstuffs containing cyanogenic glycosides can cause poisoning (severe gastric irritations and damage) if not properly handled. Upon hydrolysis, the aglycone structure becomes unstable and cyanide is released in, what is primarily a herbivore defense response. Among 60 well known cyanogenic glycosides, amygdalin represents the best-known one, widespread in seeds of Rosaceous fruit tree species such as apples, plums, peaches, cherries and apricots. On the other hand, the extracts of plants that contain cyanogenic glycosides are used as flavoring agents in many pharmaceutical preparations. Amygdalin has been used in the treatment of cancer, when HCN liberated in stomach kills malignant cells, and also as a cough suppressant in various preparations. Cyanide-concerned research in environmental and forensic sciences along with medicine closely depends on the recent achievements in cyanide determination methods. The determination of cyanogenic compounds is performed mainly by HPLC, although other analytical methods employ GC or GC-MS after a suitable derivatization, UV absorption, or electrochemical detection. This paper highlights the utilization of numerous techniques, applied in the amygdalin detection and determination in fruits, while the main requirements to analytical systems for cyanide determination and the trends in analytical research are also discussed.

Keywords: Cyanogenic Glycosides, Amygdalin, Toxicity, Fruits

1Corresponding author: nikola.milasinovic@kpa.edu.rs

INTRODUCTION

Amygdalin is a derivative of the aromatic amino acid phenylalanine, and it is one of the most studied cyanogenic glycosides, first isolated in 1830. In general terms, cyanogenic glycosides are plants' defense-related secondary metabolites (Zagrobelny et al., 2004; Ganjewala et al., 2010). These compounds are naturally-occurring toxins in plant foods. Cyanogenic glycosides consist of a sugar moiety (glycone) and the α-hydroxy nitrile aglycone - non-glucose functional group (image 1). These toxins occur in more than 2,600 plant species, and their primary family representatives include Rosaceae, Fabaceae, Linaceae, and Compositae, among others (Vetter, 2000; Ganjewala et al., 2010).

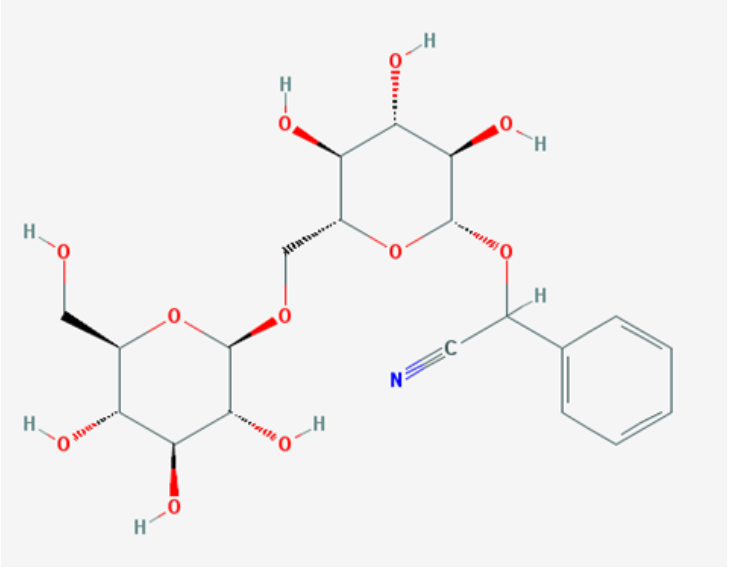


Image 1 - Chemical structure of Amygdalin (source: PubChem)

Due to high toxicity and the common occurrence of amygdalin, there is a rising need to determine its content in various foods, as to prevent poisoning. Chromatographic techniques coupled with mass spectrometry, such as GC-MS and LC-MS, are some of the most used analytical tools for analysis of drugs and their metabolites (Chassagne et al., 1996; Bolarinwa et al., 2014). Some of those methods are slow and require derivatization of analytes (e.g., GC-MS), since the technique is unsuitable for thermolabile, highly polar, and non-volatile analytes. Additionally, LC-MS requires good chromatographic resolution, as to provide clear identification of metabolites.

THE EFFECTS OF CYANIDE ON HUMAN BODY

If left intact, cyanogenic glycosides on their own are non-toxic compounds; however, the enzymatic activity of cyanogenic plants induces the release of highly toxic hydrogen cyanide, a colorless gas with a mild, bitter, almond-like odor. This reaction occurs through the process of cyanogenesis (Poulton, 1990; White et al., 1998; Zagrobelny et al., 2008; Ballhorn et al., 2009). Whereas cyanogenic glycosides are stored within cell vacuoles, the enzymes are

stocked in the cytoplasm of the cell (Gruhnert et al., 1994). Upon disruption of the plant's tissues, and thus cells' structures (such as during digestion of plant foods), the membranes of vacuoles are being disintegrated, thereby allowing for the release of toxic hydrogen cyanide. This release occurs via hydrolysis of cyanogenic glycosides by β-glucosidase and α-hydroxynitrile lyases (Zagrobelny et al., 2004).

Hydrogen cyanide releases cyanide ions. Cyanide consists of a carbon atom and a nitrogen atom, connected via three molecular bonds (C- N). One of the properties of cyanide is to adhere to, and thus, inactivate several enzymes in animals. Nonetheless, its most detrimental effect is that of histotoxic anoxia - cell's deprivation of oxygen (Beasley & Glass 1998; Hamel, 2011). Cyanide binds to the active site of cytochrome oxidase. This, in turn, stops aerobic cell metabolism. Adhesion to the cytochrome oxidase usually occurs within minutes, where a more rapid effect is observed on neuronal transmission.

Lower doses of cyanogenic glycosides are known to cause headaches, nausea, and disorientation, whereas higher amounts induce respiratory and cardiac failure, and other health issues. According to the Public Health Statement for Cyanide provided by the Agency for Toxic Substances & Disease Registry, exposure to even small amounts of cyanide can lead to death (Alade and Tunwashe, 1992). The same paper states that cyanide generates toxic effects at doses as small as 0.05 milligrams of cyanide per deciliter of blood (mg/dL). Similarly, death can occur at 0.3 milligrams of cyanide per deciliter of blood. Although frequently observed effects of cyanide are those of energy metabolism blockage, the full scope of cyanide intoxication mechanisms remain yet to be explored.

OVERVIEW OF ANALYTICAL TECHNIQUES FOR AMYGDALIN DETERMINATION

A variety of methods has been implemented to this day, in order to determine amygdalin content in various plants. This paper examines a few major methods, and some of the current trends in amygdalin detection. Most of the analytical techniques are chromatography-based, whether stand alone or coupled with mass spectrometry. Studies have shown that combining chromatography and spectrometry causes synergistic effects. Liquid chromatography separates mixtures to individual components, while mass spectrometry provides structural identity of the separated constituents.

High-performance liquid chromatography (hplc)

HPLC technique is practical for both quantification and qualitative analysis of cyanogenic compounds and their derivatives. The majority of researchers have used reversed phase C18 columns, which appear to be suitable for most classes of cyanogens. Visualisation reagents employed in thin-layer chromatography vary. These reagents usually identify cyanogenic glycosides based on evolved cyanide.

Both high-performance liquid chromatography and high-performance thin-layer chromatography are valuable preparative techniques for the isolation of sufficient pure cyanogenic constituents. HPLC was used for many years in order to directly determine cyanogenic glycosides (Cairns et al., 1978).

However, in a more recent study (Bolarinwa, Orfila, & Morgan, 2014), a HPLC procedure for amygdalin determination and quantification was developed and applied for commercial

purposes. The study was conducted in order to investigate amygdalin extraction efficiency, as well as to establish amygdalin levels in a variety of commercially-available foods and products.

The amygdalin contents of seeds from different cultivars of apple are given in Table 1. As can be seen from the table, the content of amygdalin in fruit seeds ranged from 0.12 mg g^{-1} to 17.49 mg g^{-1}. Among the twelve observed fruit assortments in this study, green plum had the highest amygdalin content (17.49 mg g^{-1}), thus demonstrating the importance of accurate cyanogenic component determination. Ingesting kernels could result in acute health problems, due to their high amygdalin content. As shown before, even small doses of cyanide can cause health problems. Hence, amygdalin content in various edible plants ought to be regularly determined and regulated.

Table 1 - Amygdalin content of seeds from Rosaceae species (Bolarinwa et al., 2014).

Fruit seeds	Amygdalin content (mg g^{-1})
Apricot	14.37 ± 0.28
Cherry (black)	2.68 ± 0.02
Cherry (red)	3.89 ± 0.31
Nectarine (summer fire)	0.12 ± 0.01
Peach	6.81 ± 0.02
Plum (green)	17.49 ± 0.26
Plum (black; friar black)	10.00 ± 0.14
Plum (purple; larry anne)	2.16 ± 0.02
Plum (yellow; son gold)	1.54 ± 0.02
Plum (red; laetitia)	0.44 ± 0.04
Apple (royal gala)	2.96 ± 0.02
Pear (conference)	1.29 ± 0.04

Values are expressed as mean ± standard deviation (n = 3 extractions).

Other plant seeds were analyzed, in order for the amygdalin content to be determined and compared (Table 2). The results show that the content of amygdalin is much lesser in vegetables, than fruit (e.g., apples), and there's likely no alarm to the rise of toxic levels. Finally, levels of amygdalin as small as 0.004 - 0.12 mg g^{-1} were detected in processed products (Table 3). Although these are unlikely to cause any intoxication, they are not negligible, and their levels should be monitored as well.

Table 2 - Amygdalin content of non-Rosaceae seeds (Bolarinwa et al., 2014).

Fruit seeds	Amygdalin content (mg g^{-1})
Courgette	0.21 ± 0.13
Cucumber	0.07 ± 0.02
Marrow	0.06 ± 0.01

Melon (honey dew)	0.12 ± 0.07
Squash (crown prince)	0.11 ± 0.22
Squash (acorn)	0.07 ± 0.03
Squash (red kabocha)	0.07 ± 0.11
Squash (butternut)	0.01 ± 0.04

Values are expressed as mean ± standard deviation (n = 3 extractions).

Table 3 - Amygdalin content of processed products (Bolarinwa et al., 2014).

Processed products	Amygdalin content (mg g^{-1})
Almond (toasted)	0.12 ± 0.06
Almond milk	0.05 ± 0.01
Almond cocoa dessert	0.04 ± 0.02
Almond flour	0.03 ± 0.01
Apple juice (100% pressed Bramley)	0.09 ± 0.03
Apple & beetroot juice (pressed apple)	0.02 ± 0.02
Apple & beetroot juice (pressed apple)	0.004 ± 0.01
Apple puree	0.02 ± 0.01
Apricot & honey cereal bar	not detected
Apricot slices tinned in juice	0.05 ± 0.07
Cider (2 brands)	not detected
Fruit smoothie (pasteurised)	0.01 ± 0.02
Peach drink	0.04 ± 0.05
Peach slices tinned in juice	0.06 ± 0.01
Prune slices tinned in juice	0.03 ± 0.03
Pumpkin (toasted)	not detected
Marzipan	0.02 ± 0.01

Values are expressed as mean ± standard deviation (n = 3 extractions).

In another study conducted by Nikolic et al. (2012), a HPLC method for amygdalin determination was validated, and results were obtained with a quantification limit of 3.49 μg cm^{-3} and a detection limit of 1.06 μg cm^{-3}. This technique is linear, quantitative, and reproducible. Hence, it demonstrates a more convenient, efficient and economical method for the trace analysis of amygdalin in plants.

Compared to other chromatographic systems, high-performance liquid chromatography is rapid and efficient. Instead of gravity or capillary forces, HPLC is based on a pump, which forces a liquid solvent through a solid adsorbent material. Different chemical constituents spread out due to different speeds at which they move through the adsorbent. The process is fast, however, not at the expense of resolution. Nonetheless, HPLC is not a perfect method, since it has lower sensitivity to some chemical compounds compared to other techniques. For instance, volatiles are better separated via gas chromatography, whereas electrophoresis allows for better separation of massive charged molecules (McMaster, 2006).

Liquid chromatography-mass spectrometry (LC-MS)

Aside from high-performance liquid chromatography, a common analytical technique for amygdalin determination is liquid chromatography coupled with mass spectrometry. LC-MS produces structural information unique to each cyanogenic compound, thus providing accurate identification even in instances where a variety of cyanogenics is present in part of a plant. The blend of liquid chromatography and spectrometry is useful for analysis of all cyanogenic glycosides and is preferable to gas chromatography-mass spectrometry since latter requires plant samples to be dehydrated and derivatized to its the core constituents (Gleadow et al., 2003), which is more complex and time-consuming.

LC-MS, however, can be performed on test pieces with prior filtering only, as to avoid columns' clogging. Liquid chromatography-mass spectrometry has been implemented to the analysis of cyanogenic compounds (Hansen et al., 2003; Franks et al., 2005; Bjarnholt et al., 2008; Sánchez-Pérez et al., 2008). Liquid chromatography separation, much like with HPLC, is performed on a reversed phase columns, where mobile phases usually consist of water with methanol or acetonitrile, and formic or acetic acid.

However, LC-MS is not without fallacies. Some of the major disadvantages are high cost, lack of portability, and need for an experienced technician (Chakravarti & Chakravarti, 2015).

Gas chromatography-mass spectrometry (GC-MS)

Gas chromatography-mass spectrometry has been demonstrated as an efficient analytical technique for amygdalin detection (Cairns et al., 1978). Same researchers had previously reported the efficiency of GC for the identification and quantification of trifluoroacetic acid (TFA) R and S epimers of amygdalin. In the study, recovery yield of pure amygdalin was 89%, upon fixation of this cyanogenic glycoside on a resin, and elution with methyl alcohol. Thus, the extraction of amygdalin, among other cyanogenic glycosides, using the resin (Amberlite XAD-2), and followed by GC-MS analysis of the TFA derivative has demonstrated to be an efficient method of accelerated detection and quantification.

Constituents of cyanogenic glycosides, hydrogen cyanide and glucose, released by enzymic hydrolysis can be detected by the methods of Lambert (1975). Gas chromatography can be synergistically coupled with a delicate sensor/detector, such as a mass spectrometer (Cairns et al., 1978). The employment of gas chromatography-mass spectrometry, precolumn derivatization, trimethylsilylation, or trifluoroacetylation is mandatory. GC-MS has

been implemented for the glycosidic compound determination for grape (Voirin et al., 1992) and passionfruit (Chassagne et al., 1995).

Disadvantage of the GC-MS is that only non-polar, volatile, and low-molecular-weight substance are suitable for analysis. Nevertheless, a major advantage of GC-MS as opposed to LC-MS is reflected in the high reproducibility (from one instrument to another) of generated mass spectra using electron ionization (EI).

NOVEL TECHNIQUES FOR AMYGDALIN DETECTION

Near-infrared spectroscopy (NIR)

As previously mentioned, one of the most common method for cyanogenic compound determination is HPLC. Several authors have studied the optimization of the extraction process and the effect of sample preparation to evaluate amygdalin and prunasin levels in almonds (Arrazola et al., 2013; Bolarinwa et al., 2014; Dicenta et al., 2002; Ferrara et al., 2010; Lee et al., 2013; Yıldırım et al., 2010).

Nevertheless, such techniques are time-consuming and complex, expensive, frequently destructive, and require highly trained personnel. Hence, these traditional methods are not consistently at disposal to all food industries (Liang et al., 2015), and a suitable, non-destructive, time-efficient, and cheaper methods are required. One such alternative is near-infrared (NIR) spectroscopy.

NIR spectroscopy has previously been used to validate the geographical source of pistachio, and to recognize test pieces with a Protected Designation of Origin (Vitale et al., 2013), as well as to investigate inner structural damages in almonds (Nakariyakul, 2014). Additionally, near-infrared spectroscopy procedure has been carried out in order to detect fungal contamination (Aspergillus flavus and Aspergillus parasiticus) in almond kernels (Liang et al., 2015), and hidden structural detriment in raw almonds (Rogel-Castillo et al., 2016).

Finally, NIR spectroscopy in combination with chemometric methods has been employed in order to non-destructively predict amygdalin content in HPLC-established almonds (Corters et al., 2018). The potential of this method was also evaluated in terms of differentiating sweet almonds from bitter ones.

Ion chromatography

Although, liquid chromatography has been demonstrated as an effective method for the quantification of cyanogenic glycosides, the method relies on comparison against standards. Furthermore, liquid chromatography ought to be carried out in case where the cyanogenic glycoside is known. The method's inefficiency is reflected in inability to allow for accurate quantification of cyanogenic compounds in plants. Moreover, particular chemicals, such as chlorophylls, tannins, flavonoids, and other, have been demonstrated to interfere with the liquid chromatographic determination of the cyanogenic glycosides (Berenguer-Navarro et al., 2002, Kobaisy et al. 1996). The hydrolysis appears to be an unavoidable step in order to measure the total content of cyanogenic glycosides. In a 2013. study conducted by Cho et al., acid hydrolysis followed by ion chromatography was utilized in order to prevent thiocyanate interference of the colorimetric method (performed via König reaction), and thus provide more accurate results.

CONCLUSION

As the agriculture and food industries develop, increasingly more plants and processed foods are available to the public. Seeing how products of various kinds can contain high amounts of amygdalin, it is imperative to keep analyzing fruit, vegetables, and other types of food. Even though HPLC has been the gold standard thus far for cyanogenic compounds determination, new methods, techniques and procedures for amygdalin determination ought to be made cheaper, faster, and increasingly more accurate.

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BONES AS FORENSIC EVIDENCE

Božidar Banović, PhD[1]

Jovana Vujošević, MSc

Faculty of Security Studies, University of Belgrade

Abstract: Forensic anthropologists use the theory and techniques of biological anthropology to determine how recently individuals lived and died. They study skeletal remains from crime scenes, wars and mass disasters within the very recent past to reveal the life history and identity of an individual, and to understand the context in which death occurred. During excavation, in order to ensure full recovery and good contextual information, osteologists rely on archaeological techniques to find, document and remove skeletal remains from their *in situ* conditions. At the crime scene, an anthropologist makes a preliminary determination of whether the remains are human or nonhuman and whether more than one individual is present. Once exposed and mapped, individual bones are tagged, bagged, and removed to the laboratory for more detailed curation and examination. A strict chain of custody is established to ensure that the remains cannot be tampered with, in case they represent evidence in a court of law. Once the initial inventory has been completed, a scientist sets about evaluating the clues that the skeleton reveals about the life and death of the individual. The first step in this process is constructing the biological profile of the individual, which includes determining the age, sex, height, ancestry and disease status. Ultimately, forensic anthropologists try to establish the identity of a victim. Once they have several possibilities, they can compare a number of different ante-mortem records (dental records, surgical implants, DNA records, and the matching of ante-mortem and post-mortem X-rays) to try to establish a person's identity. Although forensic anthropologists most often work on cases of lone victims of homicide, suicide, or accidental death, they are also called to the scenes of mass fatalities, to search for soldiers killed in combat, and to investigate human rights abuses that result in hidden or mass graves.

Keywords*:* forensic anthropology, crime scene, skeletal remains, biological profile, identification.

INTRODUCTION

Forensic anthropology represents the examination of human skeletal remains for law enforcement and helps in determining the identity of unidentified bones since they often survive the process of decay and provide the main evidence for the human form after death (Steadman, 2009). Forensic anthropology uses methods and techniques developed from osteology and skeletal biology and applies them to cases of forensic importance (Iscan, 2001; Snow, 1982). Applying these methods to unknown modern human remains, forensic anthropologists can establish minimum number of individuals (MNI), identity or manner of death,

1 banovicb@fb.bg.ac.rs

as well as help law enforcement in forming a biological profile from the unidentified remains. The biological profile includes determination of sex, age, ancestry, height, length of time since death, and sometimes the assessment of traumas on bones (Steadman, 2009; White, Black, & Folkens, 2012).

SCENE PROCESSING

When forensic anthropologists arrive at the crime scene, they must engage in specific roles. The anthropologists must conduct on-site identification of skeletal remains so they can determine whether they are human (Bass, 1995; Correia & Beattie, 2002). This detection allows the anthropologist to proceed with a planned search strategy in response to emerging anatomical scatter patterns, as well as to notify the search team once the remains are completely gathered and if the search can be discontinued (James & Nordby, 2009). Every crime scene is subtle in nature, and the possibility of contamination is continuously an issue. This is primarily due to the destruction of the skeletal remains by the biological and physical agents, such as perpetrators, animals, plants, or time, which makes identification of the individual difficult, if not impossible (Dupras, Schultz, Wheeler, & Williams, 2006). With the intention of preserving the crime scene, grids are placed around the area. Subsequently, an anthropologist sets up a screening area where skeletal material from the crime scene and surroundings will be systematically sifted through a screen to uncover human remains and other associated evidences (Dupras, Schultz, Wheeler, & Williams, 2006; James & Nordby, 2009; Stanford, Allen, & Anton, 2013).

ESTIMATING TIME OF DEATH AND TAPHONOMY

Estimated time of death is essential evidence for crime scene investigators. Once the osteological experts have determined the bones are human, they must proceed with a taphonomic valuation (White, Black, & Folkens, 2012). Taphonomic analysis involves events from time of death until bone discovery, which is determined by estimating the post-mortem period, environmental reconstruction, as well as reconstruction of post-mortem events, and differentiating traces of criminal action from alterations caused by taphonomic elements (Dirkmaat D. , 2002; Steadman, 2009).

Animal and plant activities can destroy the context of the crime scene and actual skeletal remains. Also, the acidity of soil and micro-organisms can have an effect on bone (Behrensmeyer, 1978; Wolf, 1986). For skeletal material, techniques vary based on the condition of the remains: fresh, decomposed, mummified, or skeletalised. Also, forensic procedures can include analysis using entomology, chemical tests and investigation of context and associated artifacts (Adebisi, 2008; White, Black, & Folkens, 2012).

BIOLOGICAL PROFILE

Forensic anthropologists determine deceased individuals' identity by developing a biological profile to depict their physical characteristics. There are various contributing factors that help these professionals establish an individual's age, sex, stature, ancestry and traumas (White, Black, & Folkens, 2012).

Sex determination

The skeletal remains provide evidence of sex and age: the bones of the female individuals are often less robust than those of the males and the ridges with attachments for muscles and tendons are less prominent in the females (Walker & Lovejoy, 1985). The pelvis, thigh bones and skull are particularly distinctive in terms of sexual characteristics. The female pelvis, evolutionary constructed for child-bearing, has particular features – visually wider hips – which separate it from the male pelvis. Apart from visual appearance, a number of measurements are always taken of skull and pelvic bones which help to establish sex (Walker, 2005; Mays & Cox, 2000).

If certain parts of the skeleton are preserved, identification of the biological sex of adult individuals is easier than estimating the age at time of death (Mays & Cox, 2000). If DNA can be taken from the bone remains, the sex of any individual (regardless of age) can be determined with high precision. This is possible even for very fragmented bones. The determination of sex based on the bones in the forensic context, therefore, has been drastically changed by the introduction of molecular techniques in osteology (Stone, 2000; Stojković, 2008).

Age determination

While determining an individual's age, forensic anthropologists must apply their understanding of skeletal and dental development to their conclusions (Sherwood, Meindl, Robinson, & Mayo, 2000). Primarily, ossification centres in bones - cranial bones, teeth or postcranial elements - help determine age in individuals (Ubelaker, 1989). These developments are patterned, relying on age, sex, present skeletal elements, nutritional and hormonal status, and individual variation (James & Nordby, 2009).

Age determination of skeletal remains means estimating the individual's age at the time of death, as opposed to the time elapsed since death. It is important to bear in mind that individuals of the same chronological age can show different degrees of development. Therefore, even when the osteological standards based on known patterns are perfect, there is always a percentage of inaccuracy in determining the age of the bones (White, Black, & Folkens, 2012).

Since bones grow rapidly during childhood, estimating the age of younger individuals up to 18 years is easier and often more accurate than estimating the age of an adult (Sherwood, Meindl, Robinson, & Mayo, 2000). Teeth eruption and long bone growth are most often used as a means of assessing the age of the younger population (Ubelaker, 1989). Teeth may indicate the difference between children of different ages and between adolescents and adult individuals (Lovejoy, Meindl, Mensforth, & Barton, 1985). Also, forensic anthropologists proceed with odontological identification of the individual using previously established dental records and support radiographs, which assists them in determining the age range of the individual (Weedn, 1997). The degree of destruction of the skull sutures can give a relative sense of age among older individuals (Buikstra, 1994).

Stature and weight determination

The position of the body reflects the length of the bones that contribute to the height of a person (Owsley, 2001). While establishing the stature of a subject, forensic anthropologists use many allometry formulas such as the Regression Formula for Estimating Maximum Living Stature (with standard errors) - obtained from the average of the Maximum Long Bone

Length of both right and left humerii, ulnae and radii, femurii, tibiae and fibulae (Trotter, 1970). By estimating the deceased's height, the weight can also be assessed.

Weight is more difficult to determine because of its variations over the life of an individual. Using the entire skeleton, we can calculate body weight based on formulas that look at correlations of height, geographical environment, and the weight of different types of bodies in populations (White, Black, & Folkens, 2012).

Ancestry determination

Knowing the origin of a deceased person is important for precise assessment of sex, age and stature. The geographical conditions in which our ancestors evolved influence the anatomy of their descendants. Diversely, there is no human skeleton marker that perfectly matches geographical origin (Adebisi, 2008).

An isolated skull can be measured and compared using multivariate statistics using a skull of a known origin. This process provides the most likely view of ancestry and a series of possible errors (Iscan & Helmer, 1993). Skeletal determination of ancestry can indicate a matching which can be confirmed by other techniques such as dental records or DNA analysis (Weedn, 1997).

When DNA can be taken from osteological remains, there is a possibility of accurately determining the ancestral population and even family relationships. Mitochondrial DNA (mtDNA) is a small part of the human genome inherited only through the mother's linage. Mitochondrial DNA evolves about 10 times faster than nuclear DNA, which makes mtDNA a useful tool for eliminating even closely related populations (Stojković, 2008; Stanford, Allen, & Anton, 2013).

One of the important tools in estimating the metric characteristics of the skeleton is the Fordisc program, which allows a forensic anthropologist to compare specific characteristics based on an ethnic profile or to process data using discriminatory function analysis (DFA).

Determining race category is usually difficult and less accurate than gender, age, and growth estimates. The question of racial affiliation is difficult to answer because, even though racial classification has some biological components, it is based primarily on social affiliation (Adebisi, 2008).

Manner and cause of death

Forensic anthropologists' analysis of trauma left on bones can contribute to the medical pathologist in estimating the cause and manner of death. Interesting enough, even cremated skeletal remains can provide an astonishing amount of information about the deceased individual (Correia & Beattie, 2002).

The manner of death refers to the five possibilities: homicide, suicide, accidental, natural and unknown. The cause of death refers to injuries or diseases, or their combination that results in death and could take months or years.

Forensic anthropologists commonly classify traumatic events as resulting from sharp force, gunshot or blunt force before death (ante-mortem), near the time of death (peri-mortem), or after death (post-mortem). Analysing the marks on the bone, forensic anthropologists could potentially estimate general class characteristics of the used weapon (Adebisi, 2008).

Blunt force damage produces impact marks or fractures, and can fragment bone, which can eventually help in determining shape, type of trauma, or class of weapon (Dupras, Schultz, Wheeler, & Williams, 2006). During gunshot investigation, a forensic anthropologist reconstructs a skull fractured by a firearm in order to evaluate the injuries. These calculations help the forensic specialist to determine the entrance and exit wounds, as well as the number of fired shots. Blunt and sharp force damages, along with gunshot wounds generate unique skeletal parts that are typically identifiable in unmodified state (Haglund & Sorg, 2001).



Figure 1. *Bullet entry and exit wounds on a modern homicide victim (Zpanič-Pajnič, Petaros, Balažić, & Geršak, 2016).*

Ante-mortem

Older injuries, such as fractures of long bones and even wounds from guns, leave their mark and are key indicators of a person's life. Multiple fractures, especially of ribs and typical defensive wounds, can indicate long-term violence, which is often the case in child abuse. Old injuries can be compared to X-rays if the victim had requested medical assistance, which further facilitates identification (Owsley, 2001).

Characteristics of bone injury differ depending on the part of the skeleton and the characteristics of the object. Particular fractures are caused by force applied in one spot that radiates or becomes concentrated elsewhere.

Fractures occurring ante-mortem can be distinguished from post-mortem fractures only when there is a callus, the hard tissue formed at the broken spot on the bone during the healing process. Also, interventions such as amputations leave traces of bone injuries. The distinction between ante-mortem and peri-mortem amputations again depends on the presence of healing or bone tissue infection at the site of the trauma.

Peri-mortem

Peri-mortem traces are physical evidence of activity immediately before, during or after death (Burns, 2012). They help experts in investigating causes and ways of death (murder, suicide or accident) and can help determine the intentions of the murderer. Also, in osteological analysis, it is necessary to identify bone injuries from the normal state and to distinguish between injuries caused by pathological and taphonomic agents (Skinner, Alempijević, & Đurić-Srejić, 2003). The most important contribution of osteologists in forensic research is the explanation of all potential solutions and opportunities for better collaboration with the research team (Ubelaker, 1989).



Figure 2. *1- Peri-mortem (left) and post-mortem (right) fractures of human femoral shafts; 2- Burned human bone; 3- Burning and weathering of bone; 4- Highly patterned rodent gnawing*

marks on human skeletal elements. The cranium shows heavy gnawing, with broader gouges left by the animal's incisors; 5- Root marking on a human cranium from; 6- Hop marks made by tools on the posterior surface of a proximal tibia fragment (White, Black, & Folkens, 2012).

Peri-mortem traces can indicate the intent of the perpetrator to hide or remove the body, which means that death is not accidental. Saws and similar tools are often used for such purposes after the killing. These tools leave different traces on the bones, and sometimes leave traces of metal fragments embedded in the bones. Experts can identify the types of knives used and can indicate whether they are of the same type of tool as the ones owned by the suspect. If an attempt to remove the skin of the victim can be identified in such methods of removal of the body, an important evidence for a court procedure is secured, which explains the gravity of the crime itself (Burns, 2012).

Post-mortem

After death, further changes in bones may occur, by biological (animal, botanical and human activities), chemical and physical agents (weather, soil, temperature, humidity, micro-organisms, etc). The post-mortem modification changes the state of the individual bones as well as the completeness of the skeleton (Skinner & Lazenby, 1983; Schmidt & Symes, 2008). Post-mortem analysis from the crime scene can be important to determine how the bones have reached a certain place (e.g. whether they were deliberately placed in the grave or whether the individual fell or was thrown from a height) (Wolf, 1986; Steadman, 2009; Dupras, Schultz, Wheeler, & Williams, 2006).

Human bone modification

Burial can have profound effects on the skeleton's disposition. Forcing the body into a small space can cause certain anatomical substances and even fractures. In secondary burials, there are often traces of human activity on bones; removing the skin can leave cuts on the bones, cremation usually causes a colour change (resulting in white, grey, black and blue shades) and bone cracking (Correia & Beattie, 2002).

In contemporary forensic contexts, projectiles are most common metal findings, in the form of bullets of different calibres or shrapnel. Analyses of the entry and exit of projectiles on osteological remains are necessary in forensic research. In addition to such evidence of bone modification, the radiographic detection of a foreign body, metal or other objects in skeletal remains is an additional dimension for forensic analysis (Rouge, Telmon, Arrue, Larrouy, & Arbus, 1993).

IMPORTANCE OF SKELETAL REMAINS – POSITIVE IDENTIFICATION AND DNA ANALYSIS

The anthropologist's most valued skill is knowledge of subtle human skeleton variations. Even though most adult skeletons have the same number of bones (206), no two skeletons are identical. Therefore, unique skeletal traits or observations of patterns lead to positive identifications (Dupras, Schultz, Wheeler, & Williams, 2006; Stanford, Allen, & Anton, 2013).

In order to establish the identity of the victim, as mentioned before, it is necessary to develop a biological profile in order to reduce the number of potential identities and define the timing of events. Then we compile a series of different ante-mortem records in order to try to establish the identity of a person. Positive identification of human skeletal remains - an undisputable match of the findings of teeth, skulls or postcranial remains with distinctive, named individual - is often the essential step in the analysis. The most commonly used means include dental records, health history documents and comparative ante-mortem and post-mortem X-rays. The DNA analysis gives forensic scientists a powerful tool for identifying victims and determining the presence of the alleged perpetrator at the crime scene (Steadman, 2009).

The DNA analysis, in particular, allows a forensic osteologist to deal with issues that are beyond the scope of morphological methods. There are four main questions about the deceased individual to which the DNA analysis of skeletal remains can potentially respond: sex, pathology, origin, and individual's identity (Stojković, 2008).

Forensic scientists use different tests, including DNA profiling (examination of gene sequences that only families would be expected to share), DNA typing (isolation of certain segments of the genetic sequences for analysis) and original DNA test (the same DNA segments were set to examine the degree of similarity between the two sample persons). The DNA analysis identifies the remains of victims and perpetrators of crime with much greater accuracy - connecting people with places and objects of crime. The chance of sampling the same profile with another person is about 1: 10 billion, which is more than the number of people on planet Earth (Stojković, 2008; Stanford, Allen, & Anton, 2013).

The DNA profile is useless for identifying an individual, without comparison samples. It is ideal to have ante-mortem records of the victim in the form of medical, dental records and images. Determining the identity of the victim requires that a person's information is known to some extent in order to obtain related or ante-mortem findings (Weedn, 1997).

When the skeletal material is extremely fragmented, the identification process can be extremely difficult; a biological profile may be impossible; and in such cases, forensic scientists can rely on comparison with reference to DNA samples, which are usually obtained from relatives of victims, in order to obtain positive identification (Stojković, 2008; Stanford, Allen, & Anton, 2013).

Ante-mortem data

Teeth, by skeletal structure, are the most resistant to destruction, and often serve to identify people. Dentists have records with all the information and X-rays related to the dental history of each patient, to what kind of modifications occurred over time (extraction, sealing, and other interventions on teeth). These data are priceless in positive identification, since they are at the same level as the fingerprint (White, Black, & Folkens, 2012).

Medical X-ray images before death can be used for identification as well. An X-ray image of a person's head after an accident can reveal a frontal sinus, a space filled with air inside the frontal bone behind the eyebrow area. The sinus is uniquely developed in each individual, so a comparison of the X-ray of the skull of a known individual can lead to positive identification. Wounds and infections that are visible on ante-mortem X-rays can be compared with post-mortem recordings (Owsley, 2001). Orthopaedic implants and needles with their unique serial number often help to solve the issue of identity (Dupras, Schultz, Wheeler, & Williams, 2006).

Reconstruction of the face

Digital technologies have been developed to provide a three-dimensional virtual reconstruction. The size of the nose is based on the height and width of the nasal orifices and bone marrow. After making the visual, forensic reconstructions of the face can be photographed and shown to the general public in the hope that someone will recognize the individual. If potential identification occurs, ante-mortem records can be checked and thus provide positive identification (Ubelaker, 1989; Iscan & Helmer, 1993).

DOCUMENTATION AND COURT TESTIMONY

Forensic specialists and other forensic scientists are required to document all procedures with the greatest precision. Anthropologists must include a full series of anthropological measurements and estimates, taphonomic assessments, biological profiles, individualization of characteristics, and evidence of peri-mortem traumas. It is essential that the specialists testify about skeletal remains scientifically and neutrally during the hearing (White, Black, & Folkens, 2012). This is primarily due to the fact that they bear a considerable amount of responsibility, not only to the legal community, but also to the victim and the injured party within the crime in question (James & Nordby, 2009). Documentation and court testimony is essential, as it helps the overall outcome of a death investigation by providing the legal system with a scientific explanation of evidence (Steadman, 2009; Dupras, Schultz, Wheeler, & Williams, 2006).

The law requires from forensic osteologists to identify an individual and submit a report. Osteologists as expert witnesses are indispensable due to their expertise and the assistance they provide to both parties, prosecution and defence. A forensic osteologist testifies within the limits of bone evidence and in accordance with the principles of scientific discipline he or she represents (Komar & Buikstra, 2007).

When presenting a human skeleton in reports, a forensic anthropologist needs to describe the skeleton and its components in relation to the standard anatomical position. In this position almost all bones are visible and there is no overlapping. Most bone reports include a skeleton drawing in a standard anatomical position, which is part of court expert or forensic anthropologists' reports. These drawings can be used to indicate the presence or absence of skeletal elements or they can be used to illustrate illness or injury (Stanford, Allen, & Anton, 2013). Skeletons and skeletal elements can be expressed in relation to the anatomical plane (White, Black, & Folkens, 2012). These terms are also used in field reports to describe the position of skeletons or certain bone elements, or to describe the relationship between objects and skeletons (e.g., a bullet found next to the tip of the humerus can be described as being located next to the proximal or superior end of the humerus) (Dupras, Schultz, Wheeler, & Williams, 2006). Clarity and thoroughness are of primary importance for the final reports of forensic anthropologists (Komar & Buikstra, 2007).

There is no uniform format for a forensic report, but specialists usually follow the standards from Buikstra and Ubelaker (1994), written in narrative style. In the analysis of a unique set of skeletal remains, a forensic anthropologist can design 10-20 pages of inventory, observational, osteometric and diagnostic data. These data sheets together with a narrative summary of 3-5 pages make the forensic anthropologists' final report (Stanford, Allen, & Anton, 2013).

Most osteological reports, especially in forensic settings, cover the following points (Buikstra, 1994; White, Black, & Folkens, 2012):

• Introduction. The osteologist should indicate when and how first contact was made regarding the case, characteristics of the received or disclosed material. It is fundamental to indicate each step in which the original condition of the bone material is potentially changed.

• The list of analysed bones, with the potential determination of MNI and a detailed explanation.

• Context and condition of the bones. All skeletal remains sent for analysis are considered as key evidence that is irreplaceable. It is necessary to mention any cultural or biological finding associated with bones. Also, traces of soft tissue, if present, should be recorded in the report.

• Records of all potential evidence of bone pathology. It is also important to document all healed fractures and other osteological manifestations of the disease.

• Anomalies. An osteologist needs to write down all unusual bone appearances, which very often help in the individualization of the victim. In radiographic recording, all features need to be recognised, so that they can be compared to the ante-mortem image and thus determine the individual's identity.

• Marking all signs of osteological injuries, from healed fractures to fractures associated with excavations. Determination of age of fractures based on healing, colour differences or the impact of nature on broken surfaces. It is very important to differentiate between injuries that occurred before, during and after death.

• Determination of age, gender, ancestry, height and weight. It is important to indicate which methods are used for evaluation and why exactly these methods were used.

• Establishing the time and cause of death, with taphonomic effect in mind.

• Determining the identity of a person on the basis of skeletal remains. Dental records, ante-mortem data and radiographs are ideal for individualization and for comparison with post-mortem bone status.

• Metric and non-metric measurements. A record of standard measurements of teeth, skulls and postcranial remains, as well as observations of non-metric properties.

• Summary. A simple overview of the most important bone observations and analyses.

CASE STUDY

Child abuse, unfortunately, is widespread in contemporary society. Approximately 18% of cases of deliberately inflicted injuries have led to more than 2,400 unexpected deaths in infants and children. When the child dies in this way, abusers can try to conceal the body and claim that there has been a kidnapping. In such circumstances, time can pass before the body is discovered and fragmented, and partial skeletal parts are the only evidence. Evidence of scars, bruising and soft tissue injuries is no longer present under these conditions (Walker, Cook, & Lambert, 1997).

Police investigating the case of a boy who disappeared, revealed the partially skeletonised remains of a three-year-old child in the trunk of a family car. His parents first told police officers that the boy died after he slipped and hit his head while bathing. Although initially they said that he had been buried, the discovery of his skeleton made it clear: the dead child was laid in the trunk of their car five years prior to discovery. Parents were accused of illegally disposing of the body and the skeletal remains were sent to the forensic osteologist.

During the dental and metric analysis of the long bones, an age range of 3 to 4 years was determined at the time of death. More thorough histological work on the teeth was in accordance with the age of 3 years and 7 months at the time of death. Moreover, they pointed out

that the child suffered a dental development disorder, the last about two months before his death.

A linear fracture along the left occipital bone was discovered. Growth and histological analysis have shown that the bone formation region records at least two healing phases. The forensic osteologist found that it was a month or more between the injuries that led to the fracture and death of the child. However, along the fracture boundary, the well-healed bone was covered with traces of other later bone formation episodes. Some of the ends of the fractures started to heal, and new traces of the fractures took more than a week to form a new bone. Repetitive healing process is indicative of cases of child abuse. More episodes of injuries have led to these osteological patterns. Parents who participate in the chronic abuse of their children usually avoid bringing the child to the doctor for fear of revealing their behaviour.

Ante-mortem fractures of the upper and lower incisors were observed. Such fractures are common among abused children, reinforcing the idea that the child suffered repeated injuries. The clavicle showed traces of fracture as well. Areas of subperiosteal bone formation were present on the left radius and ulna. These lesions are thin layers of the new bone formed under the periosteum due to injury and subperiosteal bleeding. Healing on the bones of the arm indicated an injury that occurred one month before the child's death. None of these subperiosteal lesions are visible on high resolution radiography. In fact, they are usually less than half a millimetre thick, but they are clearly visible to the osteologist.

The frequency of fractures caused by serious physical abuse has been reduced with the growing up of the child, probably because it is easier to control and forcefully hold younger children with intent to beat them. In this case, with osteological evidence of severe physical abuse over a prolonged period, the prosecutors accused the parents of negligent homicide, of which they ultimately pleaded guilty (White, Black, & Folkens, 2012).

CONCLUSION

Forensic specialists draw conclusions from evidence, mainly by applying their understanding of the human skeleton to a case or subject. Forensic anthropologists' work starts by establishing on-site identification of skeletal remains, and whether they are human. This detection allows the anthropologist to proceed with the plan of their search strategy in response to emerging anatomical scatter patterns and preservation of the crime scene and skeletal remains. For skeletal material, techniques may vary based on the condition of the remains: fresh, decomposed, mummified, or skeletalised.

Specialist continue with taphonomic analysis which involves events from time of death until the bone discovery, which is determined by estimating the post-mortem period, environmental reconstruction, as well as reconstruction of post-mortem events, and differentiating traces of criminal action from alterations caused by taphonomic elements. Proceeding to the laboratory, forensic anthropologists determine deceased individuals' identity by developing biological profiles to depict their physical characteristics. There are various contributing factors that help these professionals establish an individual's age, sex, stature, ancestry, stature, weight and traumas. Forensic anthropologists' analyses of trauma left on bones can assist the medical pathologists in estimating the cause and manner of death. They classify traumatic events as resulting from sharp force, gunshot or blunt force before death (ante-mortem), near the time of death (peri-mortem), or after death (post-mortem). These types of fractures and wounds generate unique skeletal parts that are typically identifiable in unmodified state.

After developing a biological profile and defining the time of events, forensic anthropologists can continue with establishing the individual's identity. Positive identification of human

skeletal remains - an undisputable match of the findings of teeth, skulls or postcranial remains with distinctive, named individual - is often the essential step in the analysis. The most commonly used means include dental records, health history documents and comparative ante-mortem and post-mortem X-rays. Also, the DNA analysis gives forensic scientists a powerful tool for identifying victims and determining the presence of the alleged perpetrator at the crime scene. Forensic specialists and other forensic scientists are required to document all procedures with the greatest precision and form a report. Lastly, the specialists testify about skeletal remains scientifically and neutrally during the court hearing.

To sum up, the main responsibility of a forensic anthropologist is to process the crime scene, examine and process skeletal remains, create an individual's biological profile, establish appropriate documentation of their findings, and testify in the court of law. Their professional understanding of the human skeleton contributes to the outcome of a crime investigation by providing law enforcement with expert answers and conclusions, which ultimately benefit the outcome of any given case.

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DIGITAL TRACE AND THEIR CRIMINALISTIC ATTRIBUTES AND SIGHTS

Jozef Meteňko, PhD
Police Academy, Bratislava, Slovak Republic

Martin Meteňko, MSc
Miriam Meteňková, PhD
Forensic Science Institute, Slovak Republic

Abstract: In this study, the authors attempted to analyse the possibilities of research and investigating digital traces and their content, as a new section of criminalistic and forensic traces. The basis for this analysis is the one and so far the only complex scientific book in Slovakia in this area, especially the content of its part one. Detailed data processing was carried out as part of the research of one of the co-authors in his dissertation paper. Digital traces are typical of crime related to the misuse of information and communication technologies. The authors of the study distinguish between many types of attributes and sights of digital traces in the criminal activities. In the framework of extensive research during and after the project in Research Activity 3.3, Canter for the Excellence in Security Research, ITMS Code: 26240120034, co-financed by the Operational Program Research and Development, shows a wide variety of attributes for research digital traces.

Keywords: trace, digital trace, criminalistic and forensic knowledge, research.

INTRODUCTION

Fast development of information and communication technology has an impact on all spheres of present-day society. An integration of telecommunication and information systems enables the speeding and improves the reliability of information processing, storage and transmission, the distance and way of communication notwithstanding, thus opening a wide spectrum of possibilities in both - positive or negative directions. In its positive direction, this development causes and backs up huge economic and social changes not only in the Slovak Republic (Meteňko atal, 2004), but worldwide, too. Technical equipment and technology are, in general, created to serve the people. The development of information and communication technologies (ICT) is very fast. The efficiency of using new technologies is growing, and the areas where they are used are also getting wider.

At present time one may not find a single branch of human activity where they would not meet the electronic equipment, digital software and its application. Actual time is typical for a larger and deeper integration of information and communication technologies with ordinary household and office equipment (television set, telephone, refrigerator etc.). We will be encircled by technologies at our every step and still in a larger extent (Rak, 2000). The big question

is, if we by police and other security and law enforcement services are in the right situation and prepared to accept and realise this call in the firld of crime control.

SOME PECULIARITIES AND HISTORICAL ASPECTS OF THE DIGITAL TRACE THEORY AND ITS APPLICATIONS IN FORENSIC SCIENCE AND CRIMINALISTICS

The concept of cybercrime appears in the days of big computers and the first PCs. Since then, however, this area has undergone stormy developments, and further trends and foreseen ongoing developments in our time. In addition to mainframe and personal computers, other technological means that connect or suitably complement the computing capabilities with communication in a variety of forms are commonplace. Their common platform is to digitize almost everything that surrounds us. In addition to primary content (text, photos, audio, video, etc.),data files often contain metadata that provide additional file information, e.g. about the format, style, or data of time or place. It is then possible to determine when the picture was taken, or text revised, under what lighting conditions, what kind of setting, including a type of camera, author of text, etc. This information found on a computer that is in some way related to a criminal offense can provide important information for the investigation.

Every daywe use mobile phones, wireless data transfers from our personal electrical equipment (via Wi-Fi, Bluetooth), electronic diaries, digital watches audio digital recorders, digital camcorders and cameras, video and DVD players, or recorders, payment and ID cards, various recording media (CDs, DVDs, USB memories, digital camcorder and camera memories, optical media, etc.), and different accessories for various peripherals to all of the above mentioned devices. Many of the other technologies incorporate one or more dedicated processors to ensure the activity of the device - on-board computers, aircraft, ships, various security and monitoring devices, electronic identification of objects, goods, etc. All including smaller or bigger memories.

More of these devices leave criminalistics and/or forensic traces of their activity, which have their general and individual patterns and are practically usable. It is equally clear that the term "computer" crime has a much wider significance today than in the past. Computer crime was logically correctly understood in the past in relation to computers only. But,nowadays, criminal activities with payment or identification cards containing magnetic data carriers, modification of unprotected data during their wireless transmission, crypto currenciesusing, and the like should be included A number of technological devices, even if they are not a means or purpose of a crime, contain a large number of different data which in the course of an investigation of another crime, offense or completely different activity have the classic feature of a criminalistic trace, and in the final stage ideally the capacity of judicial evidence. Using all of these traces, it is then possible to examine the case investigations, collect evidence against the perpetrator, or confirm the alibies of the innocent. Traces become direct or indirect evidence in the defence. On the data medium, records of the user's activity on a computer, a mobile phone list of the last calls of the crime victim, a video footage of a department store or bank customers at the time in question, the vehicle's VIN number that the perpetrator forgot on mechanical falsification of other car numbers change, or did not know, in the call centre a listing of all calls made, GPS coordinates of an object (e.g. a car or victim) at a particular time, etc.

Web cameras that capture a particular area of interest in real timecan bean important source of traces. Live shots can be browsed via the internet from the other end of the globe.

These cameras can be controlled remotely from our computer. Camera surveillance system operators are state and non-state institutions and private individuals. The cameras capture various objects and scenes, continuously capturing areas of crossroads, business houses, banks, cash dispensers, petrol stations, border crossings, technological or service spaces, tourist attractions, hotel lounges, etc. it is important that many applications working with webcams archive the images taken together with the time and place of establishment. Image frames, or their sequences, can thus also take the form of traces, evidence, and play an important role in investigating common crimes. The witnesses at the crime scene are interviewed and they try to best describe the situation, but, today if the space was monitored by digital means, we have theoutputs that could serve as traces, a basic guideline for the investigation, and then evidence of far greater redundancy (a much larger amount of objective information) than subjective descriptions of witnesses that can even differ diametrically.

DEFINITION OF DIGITAL TRACE

Every technology device that is acquired, processed, handed over, or retains data leaves a record of its activity. These records from a criminalistic point of view are traces. According to the theory of reflection as the basis of interaction, such as a person or other object or entity / influence, controls, triggers, or modifies the SW equipment, or its settings, or otherwise controls the electronic device. These activities or changes are then reflected in the material environment in and out of the technology.

In the sense of computer or cybernetic crime or cybercrime defined, or the computer or cyber-related crime including complexity of data-processing devices theafore defined concept is much wider than just a computer. In some works by renowned Czech and Slovak authors, we come up with the concept of a "computer traces", which is rather intuitively used than actually defined. The concept of computer trace appears at the same time as the concept of cybercrime, roughly in the second half of the 1980s. Obviously, the concept of a computer trace is not enough today, because other electronic devices also leave traces of the same nature, character, general or individual characteristics as a computer trace.

In foreign literature, there are several similar definitions of the commonly used term digital evidence (digital record). It is important to note that the word "evidence" has a primary meaning in English - proof. We cannot find a word about modern technology in foreign literature (we can find the meaning of a potential digital record that has a close sense of clue). The cause is simple and pragmatically based - foreign theories and practices are strongly oriented to the outcome of the criminal process, i.e. the trace/evidence must be accepted by the court and, therefore, in the perception and subsequent use of the terms, the trace and evidence are automatically identified. This concept is understood as a forensic concept of digital evidence. There are few definitions of a digital trace in the home literature. In the past years we used the concept based on a research conductedin 2010. Our concept of digital trace was presented at 2005 (Meteňko, J., Meteňko, M., Hejda J., 2005) : Any change in the material environment of hardware memory, or captured in such a hardware data carrier, which has criminalistic relevance (related to criminalistic relevant event), is exanimated (search, ensure and specific examination) with criminalistic – (forensic) informatics (cyber) methods and based on its examination is possible the identify for relationship of digital traces and object that created it.

Actually we prefer the following definition - a digital trace: A digital trace can be defined as any information that is stored or transmitted in digital form and which is related to the investigated event with which it can be searched, to investigate and decode in advance and in detail by current criminalistic or forensic methods and means. (Meteňko, M., 2018)

This definition is open to any digital technology. (Rak, R., Porada, V., 2000) In this way, the digital trace covers both the area of computers and computer communications, as well as the digital transmission area (mobile phones, but also future digital objects and equipment), videos, audio, digital photos, camera systems data, electronic security systems data and any other technologies potentially associated with Hi-Tech crime. The original proposal was about the binary form of stored or transmitted information. The word binary has been changed to digital because this term is more general (the binary form is a subset of the general digital form). Unlike other definitions, the definition is also general in the sense that the digital trace does not necessarily coincide with a criminal offense, which, as we shall see below, is very important. The digital trace must be available not only to force ministries, criminalistic, but also to general forensic investigations conducted by state authorities (civil law, commercial laws) and commercially for the needs of independent internal or external audits.

The International Organization of Computer Evidence (IOCE) originally defined a digital record, or a digital evidence or digital forensic trace, as any information stored or transmitted in binary form that can be submitted to the court as factual evidence. The word binary versus digital has already been discussed. In this definition, emphasis is placed on providing evidence to the court. In practice, for example, for forensic investigations on a commercial basis (consultant-forensics or other firm or individual), but no exit to court may be, the result of the study is submitted to the management or the company's shareholder. The concept of digital trace as any other trace should therefore be oriented only to the correct course of the investigation and, as a result, standardize the work practices, concepts and quality elements for any investigative body, and guarantee the portability of the evidence, investigation methods among the various participants in the investigation, between state authorities and independent expert bodies and entities.

In other proposals, the digital trace was defined as information characterizing or proving the commission of a criminal offense, or establishing a relationship between the offense committed and its victim, or criminal offense and perpetrator. Even here was the effort to link the trace only to the definition in connection with the offense committed. In the first definition below the digital trace, we also understand the outcome of the user's legitimate activity, which is in any way relevant to a general investigation, in-depth financial audit up to the level of IS technology. Such a definition is improperly narrowed and oriented only to a criminal offense, which may not always be true. In connection with digital traces, other related processes and entities are defined which are logically associated with digital traces and form a homogeneous whole. This is very important for the whole process of working with digital traces.

These terms were defined for our needs in the project "Centrum excelentnosti bezpečnostného výskumu kód ITMS: 26240120034 supported by the Research & Development Operational Programme funded by the ERDF", task 3.3.in the following way:

Ensuring digital traces is a process that begins when the information or device is secured or stored for preliminary or detailed expert examination. It is assumed that the digital trace will be finally accepted as evidence by the judicial authorities. It is further assumed that the retention process is reasonable and legal for working with evidence in a given geographical location (country). Physical and data objects become evidence only if they are acceptable to law enforcement agencies. Local differences and internal regulations are usually preferred in crime law processes.

Data forms. Objects or information with a credible information value when associated with physical elements. Data forms in different objects may have different formats, but they can never change the original information they are typical carriers for information. Data objects are e.g. databases, directories, files, virtual memory information, digital video, or audio recordings, and other forms of data recognised for human sensation.

Physical objects. Elements on which data objects are stored or through which they are transmitted. In our criminalistic concept known as carriers. Physical objects mean technological parts, devices designed to process, store, or transmit data. In practice, they are computer hard drives, various storage media (floppy disks, CDs and DVDs, data tape memory cards). In the broader sense, all devices (computers, printers, network elements) that contain, in addition to digital tracess, additional information such as production numbers, dactyloscopic, or mechanical or biological traces and others that demonstrate the logical relationship of the physical device), its user (offender) and criminal offense, or other activities of interest to the investigation. Physical objects are often and not only in Slovak police practice the subject of a broader widespread criminalistic interest, just as a "things traces" – those as substituents of real digital trace. All common methods of criminalistic /forensic and crime investigation are used as appropriate.

Originals of digital trace. Those are data objects that are secured for expert-forensic/ criminalistic searching and investigation purposes. Incorrect there are accepted physical and mater objects too. Originals of digital traces are the basic evidence. For the purposes of the user (perpetrator) or investigating authorities, work duplicates or copies of digital footage are created and with full acceptation. The process of creating them is unambiguous and there is no change in information content. This process, when the basic conditions are met, is always repeatable with the same results. Users and independent experts are then provided with acquired or created basic material for further investigation with the same information value. Thus, the immeasurability of the original digital trace as evidence is guaranteed.

Duplicate of digital trace. Exact digital reproduction of all data objects contained on the original data and physical object to physically the same type of data medium. Duplication of a digital traces is always created by copying all data objects of that physical object to another physical medium of the same type. Digital duplicates work quite well, especially in the complex digital environment of computers or other digital devices where there is a wide variety of links between individual data objects. Because the duplicate reproduces all data objects, both logical and physical relationships are maintained. The duplicate can be used comfortably, safely and fully. The disadvantage can be the giant amount of information stored on duplicates. The data volume and the information content of all data objects are in a ratio of 1: 1 between the original and the duplicate. Duplicates of digital traces are primarily created for the purposes of evidence investigations so that we can present the original material for re-searching and re-investigation to another, independent, knowledgeable person where the physical object itself can not be directly secured for the needs of the CPU for various reasons. In practice, the field of personal computers typically uses the image disk, which is a true duplicate of its content, a mirror of its original content stored in digital form.

A copy of the digital traces. Accurate reproduction of information from the original physical object to another, physically independent data medium. When creating a digital trace, we create data objects with the same information content but physical media that may be of a different type. In the copy creation process, all data objects of the original physical object need not necessarily be reproduced, but only some of them are selected, which are essential and therefore necessary for further investigation. An example of this can be copying a single digital photo from a digital camera memory card where a lot more photos are stored. In the case of computer systems or digital devices, we copy individual data objects, but we create them from the wider context of complex environments. As a result, all functional and logical links to other data objects may not be retained. We make copies if it is useful for the purpose of the investigation, for example, due to the size of digital trace data volume. Copies contain only part of the data objects of the original physical object. However, the information value of each copy object does not change from its original.

Ordinary copies of digital traces may not be sufficient proof because we were mistaken in choosing them, providing only a certain part, etc. From the point of view of criminalistic/forensic searching and investigation, it is therefore crucial to have originals of digital traces or their duplicates. It is possible to demonstrate transparently the eligibility and correctness of the chosen investigation procedure and the preparation of evidence.

SPECIFIC FEATURES OF DIGITAL TRACE

The concept of digital trace must always be understood in the wider context of evolving technologies. Below digital trace, we must not only represent the reflections of software and human activities in the physical environment of data storage media for computers. Digital trace are today created by technologies that work on the basis of modern electronics.

In various forensic/criminalistic laboratories of world police agencies or institutes, specialized audio and video laboratories have historically been established before analytical workplaces have started to focus on expert research on computers and their associated peripheral devices and technologies. Audio and video laboratories perform classical analysis of sound and video, whether recorded by analogue or digital technology.

The current world practice practice has a bearing on the problems of certain rivalry between all the above-described specialized areas. Each area has its own justification, its historical moments of origin, its specifics and its place in criminalistic and forensic practice. None of them is otherwise exceptional, priority over others.

Global trends in the globalization of information activities strongly erode the differences between the functionality of individual digital devices that are increasingly using common international standards for data exchange and transmission.

Everywhere there are digital trace that blend in between the most diverse digital devices and can denounce the course of many activities with much greater accuracy and content than we are able to preserve in our human memory for a long time.

From this point of view, practical criminalistic begins to perceive the integration of technological processes and objects and the expertise activity is understood in a complex way. Digital records their standardized data and communication formats are a sealant that combines exploration into the essence of digital traces and their character traits.

DIGITAL TRACES AS FIELD TRACES

Although data and information are immaterial, material medium, with various technological equipment, format, data structure, reliability and lifespan etc., is needed in order to store them. The medium contains digital traces in the form of field and it is a physical component of means of evidence. In judicial practice they can be required as physical part of evidence, from which it is possible to acquire the same information again and at any time in order to determine expert's finding. Technologies for digital data processing for personal use (PC, notebooks, smart cards, tapes, floppy disks, CDs and DVDs, mobile phones, personal organizers – PDA etc.) are perceived in this way. If they are found on the crime scene they are secured and sent to laboratory for the expert examination.

LATENCY OF DIGITAL TRACES

Digital traces are invisible. Latency is multiple. The records, which are processed or stored to the data medium, are invisible to the naked eye (with the exception of views of monitor screens, print screens, photographs or video recordings of screens and printed documents). The second level of invisibility is due to the fact that some of the records, files are invisible to the ordinary computer and digital technology users because there is a hidden attribute set, special settings of user's rights or special application or system means. Another category of latency of digital traces is comprised by deleted recordings, reformatted disks or data destroyed or changed by other means. Special software is needed in case of restoring them. In the same way we approach encrypted data, which although are visible to the user, they are without informative context.

TIME TRACEABILITY OF DIGITAL TRACES

In comparison to other traces known in criminalistic or forensic practice in some cases the digital traces can precisely determine time span of activities.

It depends on criminalist's knowledge, which enables him to fully use information and archival sources of application program equipment. Knowledge of user/perpetrator is significant as well. If the user does not have particular knowledge, then digital traces of great importance can be found in the document. A good example is utilization of functionality revision of Word. If the user is unaware of all the implications, he can unintentionally provide commercial competitor with restricted and internal information, which in extreme case can end up by filing a complaint (slander, information leak, information abuse in commerce, etc). If all versions of working documents are stored, internal audit can analyse procedure of document processing in similar way. This is determined by fact that the computers and other digital devices (camcorders, cameras etc.) have digital clock, which determines the activities of system SW or other activities of digital devices such as time lock.

It is common that accurate time setting by a larger system is executed by automatic synchronization by the Internet services and specialized transmitter so that the clock indication is absolutely credible. Then it is possible to determine when the user logged in/logged out, created, deleted, ordered services, sent and received an e-mail read it and replayed to it etc. If there are found digital traces with a time lock, they significantly document the process of particular activities in time.

Unless there is a clear identification of the user (perpetrator) in relation to computing or other digital technology and equipment, it is possible to use digital footprints to document all of its activities related to computers and other bearers with digital devices.

CONTENT OF DIGITAL TRACES

In specific cases digital traces have high information value on interests and activities of the person, the computer user or the perpetrator of the crime. From this point of view they are very important for criminalistics and other forensic sciences and from the point of theory of the traces they are unique in comparison to other types of the traces. In many cases it is possible to study not only particular activities of the computer users (all the activities he has done), but also what information he was interested in, what information he acquired, processed,

stored or handed in to the others. Due to these facts it is possible to determine some fields of the interest of the perpetrator, his motivation and to create psychological profile.

Examples include addresses (and contents) of browsed websites, content of photos, videos, text files, etc. Analysing the contents of a personal digital device reveals a lot of professional and intimate about its owner. The current problems, such as Facebook or other commercially-oriented Internet projects, point to criminal abuse of such options.

RELATIVELY LOW LIFESPAN OF DIGITAL TRACES

From criminalistic or forensic point view of digital traces, digital records are recorded to memory medium. They can be intentionally deleted by the user or systematically and automatically (without one's involvement) rewritten by other records. Read-only optical medium, intended for archival purposes, is exception. They are very expensive and not very commonly used in the practice. The mediums are intended for recording without possibility of deleting them with lifespan of 50-years and over. It is possible to restore deleted recordings with the help of special SW, but the restoring must be done very quickly before the memory medium is rewritten by system means. The promptness of restoring and fixation of particular data, capacity of the memory medium and intensity of user's activities when creating data files, play decisive role. Besides, data can be damaged by computer viruses or hidden programmes (e.g. Trojan horse).

When transmitting data by wire or wireless means, if we have access to sender or recipient filesystems (where the data is stored much longer than the transfer itself), the transmission time is very short and moves in a row in seconds (and even shorter!). Special means (monitoring software) that store data on the storage medium and without which it is practically impossible to detect meaningful real-time data content must be deployed. Trace detection in this way is operative and is typically performed only when checking different examinations or targeting the activities of the person concerned.

LARGE DATA CAPACITY OF DIGITAL TRACES

The volume of data in a medium-sized enterprise is in our range in a number of TBs. Strong centralization, arising from operational and economic reasons, is typical for computer and communication means. In our country data capacity is around tens TB in middle size companies. Only a small part has character of a digital trace.

In practice, it is often difficult to select the necessary relevant traces from such a large volume of data and evaluate them in the real short time necessary for a successful investigation. For similar reasons, it is very complicated to provide digital footprints from the Internet, where the amount of data grows with the number of (even short-term) connected servers being worked on. Digital tracks are also found on such remote servers. Data density of digital traces, among other data with development of new technologies, constantly decreases

The digital trace itself is not limited by physical capacity. New technologies for data comprising are developed. It means that larger data capacity is saved to the same capacity of data medium.

THE DATA DENSITY OF DIGITAL TRACKS BETWEEN OTHER DATA AND THE DEVELOPMENT OF NEW TECHNOLOGIES IS STEADILY DECLINING

The digital footprint itself is not in the normal sense limited by the physical volume. Still new data compression technologies are being developed, i.e., j. an ever larger amount of data is stored in the same volume of data medium. In parallel, new and new data media technologies are being created to save more data to the same or even smaller volumes (the 3.5 "disk has a capacity of 1.4 MB, CD up to 800 MB, DVD 9.5 GB and below .). In order for forensic analysis to be effective enough and fast to be analyzed, it must be directed to search for specific species or individual digital tracks. If we know what we're looking for, the process is very fast. Otherwise, the analysis will absorb a great deal of time and resources. The volume of data processed and stored with technology advances sharply. However, the amount of digital footprints left by perpetrators does not grow at the same rate. If we define the data density of the digital tracks as the ratio of the data volume of the digital tracks left behind by unwanted activities and the total volume of all data processed or stored, then this ratio - the density of the digital tracks versus the data density will overall decrease in the future, j. criminal investigation and investigation or forensic investigations will become more and more challenging in scope. The digital footprint density, ie its distribution in the digital environment, is significantly prolonging the time of the investigation, partly because of the length of its search, and because of the obstacles to the effectiveness and speed of the international exchange of information and legal assistance.

EXTREME DYNAMICS OF ENVIRONMENT OF DIGITAL TRACES

This particularity is typical mainly for common network environment in big institutions when data funds are distributed in real time. Comprehensive company applications are strongly centralized and dynamic with high requirements for application accessibility from the point of fulfilling information needs of the institution, economic and operational characteristics. Applications are included in critical company applications. It means that interruption of application function only for one minute (mainly in industry, transport, telecommunication, financial institutions etc.) can have disastrous existential consequences.

In the past, this was particularly true of large institutions. At present, it is even more pronounced in the dynamics of large network structures of social and business networks. Extensive enterprise applications are highly centralized, with a high demand for application availability, and are therefore very dynamic in terms of meeting the institution's information needs and economic-operating characteristics. There are a large number of internal users (most of the institution's employees) and / or external partners or customers. Applications have a major impact on meeting economic, competitive, security, and other goals. Critical applications must therefore be designed according to strict security rules (staff separation, logging - backup, data archiving, ongoing monitoring, etc.). If these rules are not observed in the development or operation, this directly compromises the safety and operability of the structure. Investigation, searching, detecting and searching for a perpetrator and tracking is a very complicated matter with a high degree of uncertainty of the outcome and a great deal of investment and time support in investigative processes. (Peťovský, M., Loffler, B., 2017)

HETEROGENEITY AND COMPLEXITY OF THE ENVIRONMENT OF DIGITAL TRACES

Various operational systems, databases, application software and its versions, data interface among applications, data formats, transferable proceedings, proceedings of operational records, logo etc. are commonly and concurrently used in the same organizations. Concerning information and communication technologies know-how of each field is covered by all sorts of experts. Intricacy of investigation is determined by complexity of issue, which does not have to be apprehended in a conceptual way. Quality and promptness of secured digital traces are primary cause of low criminal detection in connection with information and communication technologies. The investigation is not entirely clear in the first phase - just as with every survey, what digital tracks we are looking for and, in addition, it is necessary to effectively coordinate the work of all specialists, operationally and if necessary direct their synergies and require them with clearly qualified search and reassurance operations. The search and seizure requirement is also complicated by a legal qualification that needs to be properly interpreted. Digital footprints can be found in a variety of parts - nodal storage points of information and communication technologies, not always having to be a complete object. Sometimes it can be just part of the structure of the digital footprint or the signer's signature. The problem is also the fact that sometimes the information structures only partly duplicate internal institutional processes, reflecting precisely in the structure of digital data processing technologies that have become the means or the goal of a certain form of assault of a crime. Taking into account the analogue of the offending criminal group, in the ICT environment, it is absolutely necessary to have a team of experts who know the complex problem even from specialists (for example e-mail administrators, operating systems, databases, SAP business applications (Meteňko, M., 2018) and below). Unlike in the case of a classical criminal outcast group, however, the police are not available for such cybercrime investigation teams. The daily rate of a top specialist in Information and Communication Technologies is calculated at 10 times the hourly rate of working time of forensic technicians.

The complexity of the environment is of paramount importance. For example, if the object is to examine a solitary piece (computer or other technological device intended to cover the needs of the user or owner - mobile, electronic diary, video camera, digital camera, vehicle control module, etc.), which can be easily selected from the environment, then can be sent for analysis to a specialized forensic / forensic organization while preserving the process rules and functionality of the device and can be examined separately by a highly professional team in the lab. But if it is a large complex object, without the possibility of separation from the system, such an examination must be carried out on the spot.

LARGE GEOGRAPHIC CAPACITY OF ENVIRONMENT WITH GEOGRAPHIC TRACES

Computers are connected together around the whole world with the help of private computer network and the Internet, so distribution of distant data and application is possible. A highly experienced perpetrator, who wants to leave minimum traces behind or to make investigation difficult, usually never uses the particular computer directly, but with help of other computers, which are theoretically and practically in absolutely different country or continent. Although the computer network does not recognize geographic boundaries, the investigation is always based on present laws of the country.

Crime scene, involving information and communication technologies, is in some cases impossible to restrict geographically to a particular territory, although the digital traces are limited by very small technological space - chip size, data disk etc. The crime scene can have virtual character due to the fact that some types of the applications use distributed processing concurrently on several distant servers.

Criminalistic and Forensic searching and Investigation thus introduce other aspects in the process that complicate the provision of digital tracks in geographically remote locations with completely different laws. In some countries, the case may not be a criminal offense either.

The crime scene determined by the way it is committed by means of information and communication technologies and in connection with the provision of digital footage, acquires a completely new dimension and content compared to the classic crime scene in the current understanding of forensic science. The crime scene for information and communication technologies can not, in some cases, be geographically trivial limited to a certain territory, although digital traces are limited by their very limited technological space - the size of the chip, data disc or other media is actually quite small. The crime scene may even have a virtual character because some types of applications use distributed processing simultaneously on several physically remote servers for various reasons.

Another factor contributing to large-scale digital footprint distribution is the compatibility of devices, their interfaces, data formats. An example example can be one and the same data file - e.g. Word document, or digital photo, e.g. * .jpg format, which can be stored both on the attacker's notebook and on a personal digital assistant (PDA as well as on a diskette, CD-ROM, USB key, or on a corporate server data server or on a remote server on another continent).

HIGH LEVEL OF DATA PROTECTION MAKES THE WORK WITH THE DIGITAL TRACES DIFFICULT OR IMPOSSIBLE

Due to the safety reasons there are a lot of data transitions and nodal points, mainly in file systems and databases, which are cryptographically protected

An important element here is also the personal substrate of protection, which now appears to be the most appropriate place to penetrate(Meteňko, M., 2012).

If we are not familiar with the particular algorithm or technological means, the data in digital form do not have value and information for the investigation and so it is not possible to identify them as digital traces and conduct any further investigation. To amateurs the encrypted file only contains mixture of unfamiliar data. We are able to find and read their content only after decoding them.

In some cases, it is difficult or impossible to continue investigations (offenders usually do not voluntarily announce their technological know - how and deliberately use state - of - the - art technologies that are not yet available to public authorities); in other cases, the injured entity may in certain circumstances provide the investigating authorities with the necessary knowledge , technological and technical means. A corrupted enterprise that has a cryptographically secure database where a defrauding type transaction has occurred, attempts to help identify the offender, discloses all information, and provides the highest system access privileges to investigators and Forensic and Criminal Intelligence Specialists.

A DIGITAL TRACE IS AUTOMATICALLY IDENTIFIABLE AND PROCESS ABLE BY SPECIALIZED DEVICES

Since digital traces are generated as a final result by a certain technology, it is feasible to automatically assess the traces by technologies compatible with the former ones supposing necessary conditions are preserved.

The part of digital traces is the output of the user or the system software. These software's are programmed by set systems and algorithms in a way that the outputs related to these programs have very specific logic and structure, the data format; which is possible to estimate to a certain degree of accuracy.

This aspect is exploited in particular cases by making use of specialized software, which manages to automatically assess digital traces made by algorithm devices, and identifies these traces with pinpoint accuracy.

This feature of digital traces also includes the possibility of searching them with datamining tools, which in the past was not applicable in the field of criminalistic traces, or only some of the advantages of this process - the procedure (perhaps in the future, methods of investigation), were partly used in typing and profiling in criminalistic. (Meteňko, M., 2018)

One example is violating copyright laws by installing illegal software into corporate computers. Each installation of legal or illegal software leaves behind some information on the installed product in the system registers of OS Windows.

From the viewpoint of criminalistic and forensic practice, this information is equivalent to digital traces.

If we have general corporate database of officially purchased software products at our disposal and the computers are connected to the corporate network, it is possible to search/scan the system registers of all computers available and specialized user software and to compare the result with the given database.

The output is in fact the list of all installations illegally carried out in every PC, whereas the price of licenses not carried out can also be automatically ascertained.

HIGH LEVEL OF DIGITAL TRACES OBLITERATION BY QUALIFIED OFFENDERS

As practice shows, highly competent offenders whose professional education is associated with the field of information and communication technologies cause the largest traces.

The offenders are extremely familiar with the keystone of crucial technologies functioning as the ways of the technologies and data protection they have to and are able to avoid, are of great interest to them. At the same time, they are acquainted with the habits and behaviour of employees and the management of a particular organization.

The commonest tactics of hackers hacking computers is gaining unauthorized access to the administrator´s passwords which enables them to perform unlimited activities within the operation systems, including deleting operating and monitoring records/logos of user, distribution and system activities.

Thus, a hacker is proficient in gaining access rights that are a property of another, moreover he/she is able to make use of someone else´s user account and act under a new identity.

Supposing the identity is revealed, the attention is directed towards the innocent victim (Meteňko, M., 2012)

DAMAGED DIGITAL TRACES RESTORATION

Under specific conditions, deliberately deleted or otherwise damaged digital traces can be restored.

As a rule, this is not true of other criminalist relevant traces. A footprint once deleted cannot be restored.

Digital traces restoration is conditioned by the keystone of operation systems functioning related to the information and communication technologies and techniques which may differ either slightly or substantially among each other, according to the same mechanisms of functioning.

If we delete a file in Windows or in the e-mail, it is possible to restore it in a user´s sense by retrieving it from "the thrash" or "deleted items".

Even if a user does away with these records in a file system, i.e. in its fragments on purpose, the information remains retained for a certain period of time and it may be restored, even completely by special software or by unique procedures. Similarly, hardware restoration is possible.

DIGITAL TRACES ORIGINALITY

It is very easy to copy the data records, files and their carriers and to generate their duplicates.

During the files and data copying process, no data loss or distortion is caused. This results from the keystone of digital technologies, respectively from the quality as a technological requirement imminent to digital technologies. That is why providing full proof of originality, i.e. discerning between the original and the copy becomes so intricate, as for instance when submitting proofs at trial proceeding. The above-mentioned problem, explained and perceived in a wrong way may, in extreme cases, result in mistrust towards digital and electronic traces as such.

In particular cases, digital traces can be easily modified without the process of modification leaving any visible tracks of its activity behind. Digital traces, either the copies or the original, may be damaged or destroyed, deliberately or randomly, irrespective of whether they are in memory medium stand still or just being distributed/transmitted over the net.

Digital traces may also be easily modified or destroyed right in the process of collecting or safeguarding it for the purposes of examination and investigation. Unless the standard procedures of digital traces safeguarding along with the thorough and overall documentation are observed, it is theoretically possible to handle even safeguarded digital traces. Naturally, these shortcomings need to be checked and eliminated in a methodical and organized manner so as to make the digital traces acceptable in the courtroom. However, changes may be achieved in positive direction, too. An example is a digital photography of lower quality, caused by a false exposure; a system-defective, blurred shot, balanced in incorrectly coloured way.

At present, specialized software is able to remove the shortcomings to the extent that it is feasible to recognize the face of a person or the license plate of a car. The flow of the process is

exact and repeatable at any time with the same effect. Thus, appropriate software may change a primary/original trace which lacks the required information into a high-level quality digital trace which clarifies the investigation.

LOW ACCEPTANCE AND KNOWLEDGE OF DIGITAL TRACES BY JUDICIAL/LEGAL AND CRIMINALISTIC PRACTICE

Digital records can catch hold of a picture, sound, different operating values and conditions, user´s activities or the activities associated with automated processes and programs, what is more, they record the values given by exact measurements, data transmission and many more.

Unlike subjective workings of human memory, we are able to reproduce the above-mentioned records over and over again in the same quality and in front of no matter how large the group of impartial observers and experts is.

The problematic issue related to digital traces is theoretical and in some cases also practical possibility of falsification and of challenging the legal quality of traces. However, this possibility occurs within all types traces processed in criminalistic and forensic way.

This leads to a relatively unworkable criminalistic but especially judicial practice of their acceptance and thus of search and exploration. This precedent is also reflected in the current legislation, which remains on the findings of more than 20 years, with reference to "sufficient modification of computer traces". Current trends, however, show that up to 40 percent of offenses are somehow linked to the way of committing or confiscating, which can be investigated using the knowledge of digital footprint theory. Estimates suggest that this percentage will grow for the long term, probably up to 60-80%.

In practice, we are more often confronted with the prejudices of individuals, which result largely from the ignorance of the issue much more than the real reference to the real weaknesses of the communication and information categories. Many information and communication information and related technologies are classified and certified to the same level as no other technologies and technical means. Communication and information technologies contain a sufficient number of logged information mechanisms, so that while observing objectively defined investigative and investigative procedures and corresponding handling of acquired digital footprints, these are credible and undisputable proofs of the activities that took place on the scene or through this technology.

The biggest problem at present is identifying the person who created the digital trace. At the moment, similar mechanisms of individualization and linking between the trace and its object are sought, as is the case with some criminalistic methods investigating static reflection. But more perspective is the plane of reflection of dynamic features known from handwriting, spoken speech, photographic recordings, as well as from the field of traceology or mechanoscopy.

STORING AND QUALITY OF DIGITAL TRACES IS INFLUENCED BY SUBJECTIVE FACTORS

From the point of safety storing and quality of digital traces is directly proportional to international, national or institutional legislation, experience of system administration and it depends on institutional culture. Regular monitoring and audit of key transactions, providing storage backup and data archiving from important data sources to a special medium and their long-term storage, play primary role. (Gragušová, Ľ., Greguš, M., Kreheľ, O., 2013)

Thus, it plays routine monitoring and audit of key transactions, backing up and archiving data from important data sources (corporate IS, e-mail, etc.) to special media - ideal disk arrays and their long-term storage and protection. From these media, it is then possible to restore required data if required, which are no longer available in production systems. The frequency and frequency of procurement of backup or archive media, the way they are preserved to avoid their harm, the observance of institutional standards and rules, defined primarily in the security information policy and subsequently in the operating order of the ICT department of the institution, are decisive.

The other side of this feature is the above-mentioned still low acceptance and the resulting ignorance and inability to search, secure and pre-examine - to decide on digital objects whether they are digital traces or not, and what will actually be a digital trace. The current situation not only in Slovakia, when we directly banned subjects for work in the city of crime, and during the tours, digital trace and mostly their carriers are ensured for long time unbearable. The need for substantial skills upgrading is a success story in this area, and the future in this area is no different than changing the current access to search and trace processes, as we have said in this section on the characteristics of digital traces.

CONCLUSION

In practice we are exposed to prejudices of individuals made on grounds of unfamiliarity with the subject matter rather that to relevant reference to actual weak spots of communication and information categories. Much information and communication information along with the corresponding equipment is classified and certificated in the safety manner at such level that is simply incomparable with any other technologies. Communication and information technologies contain a satisfactory quantity of the record information mechanisms, so on condition the examination and investigation procedures, objectively defined are observed along with the appropriate handling with collected digital traces, these technologies are reliable and unimpeachable evidence of activities which took place at the crime scene or by means of this technology. Basis for searching, ensuring and research of digital traces are knowledge about criminalistic and forensic concept digital traces. Situation in the field is year pro year worst. More and more traces are not ensured for acknowledge in this area. There are other scientific problem too. One of the main problem is the identification of the person responsible for a particular digital trace.

Only long term basic and applicable criminalistic and forensic research can help to improve the negative situation in the area of digital traces.

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IMPLEMENTATION OF THE NEW STANDARD ISO/IEC 17025:2017 AND ITS IMPACT ON THE QUALITY OF WORK IN FORENSIC LABORATORIES

Lazar Nešić[1]
MSc Anđelko Marić[2]
Milivoje Lončar
National Forensic Center (NFC), MoI Serbia
Jasmina Inđić[3]

Abstract: The implementation of international standards in forensic laboratories is crucial in order to ensure the validity of results of forensic examinations that would be admissible in court and internationally exchangeable. For the purpose of achieving credibility and validity of physical evidence in criminal proceedings, as well as inter-laboratory data exchange, it is necessary to establish a quality system. Previously, laboratories were accredited to ISO/IEC 17025:2005 - General requirements for the competence to carry out tests and/or calibrations. Striving for continuous improvement regarding the quality of work in laboratories, the previous version of the standard ISO/IEC 17025:2005 has been revised and the new version of the standard ISO/IEC 17025:2017 published, which has been developed to align with other standards: ISO 9001, ISO 15189, and ISO/IEC 17021-1. The new version of the standard will be introduced herein, highlighting significant changes between the ISO/IEC17025:2005 and ISO/IEC 17025:2017. The focus will be on the requirements regarding competence, impartiality, confidentiality, process and risk assessment for a forensic institution and the standard's continuous improvement, with respect to the latest changes in market conditions and technology. By accepting the requirements and implementation of ISO/IEC 17025:2017, the National Forensic Center, MoI Serbia will grant accreditation of laboratories and ensure internationally accepted results. To that effect, in the following period, all activities of the NFC must be aligned to the new standard ISO/IEC 17025:2017. Creating a plan for the implementation of the new standard will improve effectiveness of conducted laboratory activities. A new plan of activities will be introduced in this paper. It will be necessary to follow the plan in order to fully adopt the requirements of the new standard and its implementation in a forensic laboratory operating within MoI Serbia.

By implementing the new standard ISO/IEC 17025:2017, the NFC will demonstrate its technical competence and thereby ensure the highest level of validity of forensic results and their continuous cross-border exchange. This will enable the continuation of successful cooperation among countries, namely valid forensic information and data sharing with other accredited forensic laboratories. This will also satisfy certain pre-

1 lazar.nesic@mup.gov.rs
2 Andjelko.Maric@mup.gov.rs
3 jasminavuckovic@gmail.com

conditions for the future implementation of the Prum Treaty, as one of the obligations of the Republic of Serbia from the Action Plan for Chapter 24 of the negotiations with the EU.

Keywords: accreditation, forensics, competence, risk assessment, quality system

INTRODUCTION

The new version of the standard will be presented herein, along with the impact of changes of laboratory-based activities and other aspects of organizing thereof, as well as the importance of eliminating risks of contamination in the processing of physical evidence.

It is important to apply a quality system, as well as to accredit forensic laboratories in accordance with international standards in order to provide valid physical evidence in court. Operating an efficient quality system that is seen as compliant with the standard, will ensure the laboratory produces technically valid and reliable test results. Laboratories that utilize the standard that regulates the implementation of the quality system will ensure its accreditation for delivering valid physical evidence, regardless of where it is processed (Milošević, Bjelovuk & Kesić, 2009). The quality assurance of the entire forensic process is based on the application of standards ISO/IEC 17025 and ISO/IEC 17020, namely a document incorporating both the requirements of these standards and Forensic Science Process ILAC G19. The implementation of standards and accreditation of laboratories proves the technical competence of a laboratory to perform tests, while also contributing to improvement of the quality of results, thus achieving consistency of quality, which is the main goal of the standard ISO/IEC 17025. The very application of these standards is a necessary, but not sufficient condition for establishing 'a chain of custody', which involves proper handling of samples from the moment of their finding, their proper processing at the crime scene, packaging, transport, analysis and reporting of results in court (Ljuština & Bjelovuk, 2014). By establishing 'a chain of custody' and following precisely-defined procedures during the entire forensic process, the results of forensic testing become reliable, recognized, acceptable and internationally exchangeable. Forensic laboratories that operate in compliance with internationally recognized standards provide internationally exchangeable results and contribute to the implementation of the Prum Treaty.

THE STRUCTURE OF SRPS ISO/IEC 17025:2017

The previous version of ISO/IEC 17025:2005 published in 2005, has now been revised in line with the new changes in the environment, practices in laboratories and scientific achievements in the field of information technology. Furthermore, the revised version was developed in order to comply with other existing international documents. Establishing a quality management system enables continuous improvement of laboratory work that will earn credibility in court with respect to the performance of all participants in a forensic process, results of laboratory activities, and the final forensic report. The implementation of this standard guarantees that the results of laboratory analyses are valid and internationally exchangeable.

Laboratory competence, impartiality and consistent work are the main requirements that are foreseen by the implementation of ISO/IEC 17025:2017. Compared to the previous version of the standard, the focus is on the requirements for metrological traceability, conformity assessment, as well as information technologies (use of computer systems, electronic records and the production of electronic results and reports). The conditions and a novel approach

to work in modern laboratories involve the use of information and communication technologies, and for these reasons it was necessary to develop a chapter that will enable the application of those technologies in modern laboratories. The new chapter allows for the use of computer systems and the production of electronic records of results and reports.

What is particularly characteristic of the new standard is risk-based thinking, which will identify, prevent and, in time, eliminate adverse occurrences that can influence results of laboratory tests. By eliminating and addressing risk, the effectiveness of the laboratory management system will improve results and prevent adverse effects. When it comes to risk, it is primarily important to identify it and make a risk-management plan to be implemented in order to eliminate or minimize such risk. Monitoring, auditing and continuous improvement of risk-management throughout the organization constitutes a framework for risk-management (Hirt, 2018).

The structure of the standard contains the following requirements: general requirements, structure-related requirements, resource requirements, and management-related requirements.

General requirements are based on two important components: impartiality and confidentiality. Impartiality implies responsibility of personnel, as well as impartial performance of laboratory activities. The laboratory must identify risks to its impartiality on an on-going basis and eliminate or minimize such risks. Confidentiality refers to the protection of its customer's confidential information and proprietary rights, including protecting the electronic storage and transmission of results. The laboratory is responsible for management of all information obtained or created during the performance of laboratory activities. This information is considered proprietary information and must be regarded as confidential, except for information that the customer makes publicly available. Personnel must keep confidential all information obtained or created during testing and calibration activities performed by the laboratory, except as otherwise provided by law.

Structure-related requirements refer to the organization of the laboratory. The previous version of the standard required the appointment of a technical and quality manager, which is omitted from the new standard. The revised standard now requires that the laboratory identify the management that have overall responsibility for the laboratory. The laboratory must define and document a range of laboratory activities for which it conforms to this International Standard: it must define the organization and management structure, and the relationships between, technical operations and support services. It is of paramount importance to specify the responsibility, authority and interrelationships of all personnel who manage, perform or verify work affecting the quality of laboratory activities.

Requirements pertaining to resources define the impartiality and competence of personnel in order to achieve reliable, valid results of laboratory testing and calibration activities. The key element of the laboratory's accreditation is personnel, namely the competence of each employee in a forensic laboratory, and the concept of unified set of standards in the work of forensic specialists (Žarković, Bjelovuk & Nešić, 2010). As such, personnel are the most important link in the forensic process and they need to be trained to perform specific operations. For the reasons mentioned, it is necessary to determine the competence and define the profile of personnel. Competence requirements include those for relevant qualifications, adequate knowledge, skills, and requirements for constant improvement through continuous training and education (Bjelovuk, Kesić & Radosavljević-Stevanović, 2013).

Laboratory personnel, either internal or external, who may influence laboratory activities must act impartially, be competent and work in accordance with the laboratory's management system. This requirement applies not only to the personnel directly involved in testing / calibration / sampling activities, but also those indirectly involved, such as technical personnel.

This may apply to equipment maintenance personnel or management system personnel that assess suppliers or control the management system including conducting internal audits (Anastasopoulos, 2017).

The most critical stage during the forensic process is the activity at the criminal-forensic scene, security and protection of the scene, finding relevant evidence and its proper sampling, handling, storage and transport to a forensic laboratory. In order for these procedures to be properly undertaken, it is necessary that they are taken by qualified, professional personnel. Unqualified personnel may overlook, contaminate or improperly collect evidence (Saldivar, 2017). The evidence collected in this way is not used and is not admissible in court proceedings. Limited forensic knowledge makes the research process more difficult. Forensic personnel working on processing the scene, as well as those working in a forensic laboratory must be competent and have the knowledge and skills necessary for successful forensic processing of physical evidence. For these reasons, the laboratory must define rules to make sure that all its personnel are competent to perform the required tests or calibration. The term "competence" means that the personnel have the necessary knowledge, skills and abilities. Laboratory policies should also include procedures for retraining and maintaining skills and competencies and maintain detailed records in order to prove that all personnel are competent and trained for activities they perform. A laboratory should have clear statements on competence required for all activities.

Success in any profession is the result of several important sets of skills, such as critical thinking and exceptional written and verbal communication (Saldivar, 2017). The acquisition and development of these attributes is extremely crucial for forensic personnel. These key features include knowledge, cognitive and communication skills, work orientation, experience, professionalism and attitude to life (Saldivar, 2017).

In accordance with the requirements of the standard, the laboratory must document the competence requirements for each function involved in laboratory activities, including the requirements for education, qualification, training, technical knowledge, skills and experience. The laboratory must ensure that the personnel have the competence to execute the activities for which they are responsible. It must have in place procedures and records for selecting, training, supervising, authorizing and monitoring of personnel, as well as for following and monitoring of their competence. Any laboratory must maintain records of training for all personnel involved. Those personnel records should include participation in scientific research papers and projects, participation in internal and external training courses and additional pre-qualifications. Competence assessment may take different forms, depending on the tasks performed, for example, written and/or oral examination; practical exercises; or direct observation by a qualified person (International Laboratory Accreditation Cooperation [ILAC], 2014). The training program of an individual is based on their expertise, professional knowledge and experience.

Quality of processing of items and traces found on the criminal-forensic scene directly depend on the competence and professionalism of the personnel. The credibility of evidence is determined by the manner in which it is secured and processed, and particularly by professional qualifications of persons handling them (Žarković, et al., 2010).

Process-related requirements introduce clearly defined procedures for sampling and handling of test items. Instead of sampling procedure, the laboratory must have in place a sampling plan and a sampling method. The sampling method needs to contain the following:

1. selection of samples/sites;
2. sampling plan;

3. preparation and treatment of a sample(s) taken from a substance, material or product to yield the required information in testing and subsequent calibration.

Reports on sampling procedures also include the following specific records: date of sampling, unique identification of an item, location of sampling, reference to the sampling plan used, as well as details on environmental conditions.

In accordance with ISO 9001, the "preventive measures" requirement has been changed to "risks and opportunities". The laboratory must identify and address risks that may arise from its activities and influence the results. Furthermore, it is necessary to eliminate the risk sources, plan actions to address them and achieve improved results. Risk-based thinking is essential to achieving an effective quality management system. In accordance with the requirements of this International Standard, the organization should prepare a risk-management plan and implement actions to address risks and opportunities. Addressing both risks and opportunities establishes the basis for increasing the effectiveness of the quality management system, achieving improved results and preventing adverse effects (International Organization for Standardization [ISO], 2015).

Chapter 8 defines Management System requirements - the chapter has been structurally changed by introducing options A and B and utilizing ISO 9001: 2015 as the basis for determining compliance with the standard ISO / IEC 17025. Option A uses only ISO 17025: 2017 to directly display a management system that is able to support the technical requirements of the standard. Option B operates in accordance with ISO 9001: 2015 as the basis for determining compliance with ISO / IEC 17025: 2017. This option enables the implementation of a system based on ISO 9001 and on the requirements of ISO / IEC 17025 (Chapters 4 to 7 addressing: general requirements, structural requirements, resource requirements, and process requirements).

As a minimum, the laboratory management system must include the following:

- management system documentation - the laboratory must establish, document and maintain policies and objectives relating to competence, impartiality and consistent implementation of operational activities;
- control of management system documents;
- control of records - identification, storage, Back-up;
- actions to address risks and opportunities;
- improvement;
- corrective actions;
- internal audits;
- management review.

ACCREDITATION OF NFC BASED ON ISO STANDARD

The 2016 ILAC Resolution GA 20.15 stipulates that the transition period for the implementation of the new version of the standard is three years from the date of publication thereof. Laboratories are required to submit their own plan of transition to the new standard SRPS ISO/IEC 17025:2017 to the Accreditation Body of Serbia (ABS) by 1 March 2018, which the NFC has already completed. As of 1 December 2020, only accreditation complying to the new version of the standard will be deemed valid.

The NFC's plan of activities with set deadlines for their implementation, as well as activities that are the prerequisite for transition to the new version SRPS ISO 17025: 2017, include the following:

1. -creating a transition plan timeline and acquainting the personnel with the revised standard ISO/IEC 17025:2017;

2. - conducting training for the personnel responsible for transition and implementation, holding meetings and presentations of the new standard for the management and quality control personnel by 30 June 2018.

3. - performing analysis of the existing quality system and the requirements of the revised standard;

4. conducting a necessary gap analysis of the current degree of conformance to the requirements of ISO / IEC 17025: 2017, aimed at evaluation of the existing forensic laboratory processes and their comparison to the requirements of the standard. Gap analysis is the most important step in harmonizing a business with a quality system, for which the deadline is 30 July 2018. The result of the analysis is a list of activities that need to be performed in order to conform the existing business system of the organization to the standard and to implement the requirements of the new standard in a short period of time;

5. -compliance of Document System Management with the requirements of the standards and its implementation - August - December 2018, modification of the management system documentation and organisational units documentation.

6. -training of laboratory personnel and internal auditors, which should be organized as soon as possible so that they can successfully continue with other activities / minimum 12 participants;

7. -carrying out internal audit and management review – September-December 2019;

8. -submitting an application to the ABS for assessment against the revised standard, with a final deadline in March 2020.

IDENTIFICATION OF CONTAMINATION RISK

The newly revised standard introduces a risk-based consideration. In a forensic process, risk is focused on contamination of recovered items and traces processed on the crime scene and in forensic laboratories. With increased necessity for DNA profiling, used in criminal-forensic expertise, risk of contamination in DNA samples proportionally increases. This requires more rigid operational protocols and awareness so as to minimize contamination risks. Contamination has the potential to degrade and destroy the evidence or to mislead criminal investigation. Understanding the origins of contamination will ensure highest insight into the prevention of occurrence and elimination thereof. If there is any doubt that careless handling has resulted in contamination of evidence material, such circumstance must be investigated by professionals responsible for analyzing and giving expert judgment, to maximum reasonable extent (Bjelovuk et al., 2013). DNA technology has considerably improved since it has been introduced, but techniques of collecting and handling evidence have not been advancing at the same pace.

Taking into account the specific nature of forensic science, the issue of identification and elimination of risk should be observed from a wider perspective, i.e. in the course of the entire

forensic process. It is primarily necessary to define types and manners of potential contamination.

From the forensic science perspective, activities can be observed in two phases:

- phase of criminal forensic processing of the crime scene: detecting, collecting, packing, storing and transporting material evidence;
- analytical phase: implemented in laboratory settings, collected material evidence is processed in a forensic laboratory (Forensic Science Regulator [FSR], 2015).

Contamination of biological traces can occur in any phase of a forensic process. The main sources of DNA contamination include:

- forensic personnel and their personal protective equipment;
- contaminated consumables;
- cross contamination of DNA samples (FSR, 2015).

Contamination can occur directly or indirectly. Direct contamination involves transmission of DNA from the contamination source to material evidence or DNA sample. This can happen when laboratory personnel handle an evidence DNA sample, as well as when there is no direct physical contact, e.g. as a result of speaking, sneezing or coughing onto evidence items or DNA samples. Indirect contamination (secondary transmission) is a result of DNA transmission from a contamination source to an evidence item or a DNA sample through an intermediary, such as gloves, tools, packaging and laboratory surfaces (Scientific Working Group of DNA Analysis Methods [SWGDAM], 2017). Latent cells which can be transmitted by people to items in direct contact can pose contamination risk in working with material evidence. Researchers of University of Indianapolis conducted a number of experiments in 2015 to test the sensitivity of DNA transmission. Person A was shaking hands with Person B for two minutes, and then handled a knife. Person B's DNA profile, who had never touched the weapon, was identified on the weapon handle in 85 per cent of samples ("Identifying and Preventing DNA Evidence Contamination", 2016). Even in cases of cleanest possible laboratory settings, potential contamination cannot be completely eliminated and it cannot be entirely possible to create a DNA free environment as long as people work therein. For those reasons, it is necessary to screen DNA profiles of laboratory personnel that may occur in contaminated samples. Such samples are called elimination samples("Identifying and Preventing DNA Evidence Contamination", 2016).

ELIMINATION OF CONTAMINATION RISK

It is almost impossible to eliminate all risks that can lead to contamination, but certainly all precautionary measures can be taken to minimize it. A number of international documents have been adopted with the aim of reducing contamination risks in a forensic process, especially in laboratory settings. It is necessary to assess contamination risk and ability to detect contamination in each and every stage of a criminal forensic investigation. Such a contamination assessment can include: investigation of contamination, if detected; reduced number of sample transfers or manipulations; involving robotics to reduce human contamination. Laboratory personnel must be trained to recognize their role in contamination prevention and control. This pertains to the manner of use of personal protection clothes, equipment and consumables.

Contamination control includes:

- conducting analysis based on danger or risk on the entire method with regard to contamination;

- identifying points in the process where contamination may occur (e.g. consumables, transfers, etc.);

- establishing acceptable control limits in every point or phase of the process;

- establishing monitoring requirements (e.g. frequency);

- establishing corrective measures;

- establishing efficient methods for routine and in-depth cleaning/decontamination of facilities and surfaces;

- establishing conditions for records maintenance;

- establishing procedures for checking whether the contamination control system still remains suitable for the purpose (FSR, 2017).

The ENFSI group for DNA has adopted a document defining minimal requirements for laboratories in order to prevent contamination and ensure quality of DNA forensic analysis. One of the first steps that must be taken immediately upon identifying DNA evidence is to separate all collected samples so as to prevent cross contamination. The access to such premises must be strictly controlled and limited, and this has to be recorded. In addition, it is necessary to supervise all conditions pertaining to devices, equipment and consumables. Storing conditions must be such to prevent loss, depletion or contamination of evidence material, and to ensure integrity and identity before and after the forensic analysis.

Personnel must be aware of issues pertaining to identification, collection, transport and preservation of DNA evidence. Personnel handling the material evidence potentially containing DNA must be aware of the sensitive nature of the DNA. A cause of cross contamination of material evidence can easily originate from gloves, protective clothes or face masks. Once the sample is properly packed, the contact between the personnel and material evidence should be minimized.

Laboratories should maintain the following information related to contamination traceability:

1. Number of contaminations with regard to total number of processed samples;

- number of contaminations in reference samples;

- number of contaminations in case of sample application.

2. Contamination analysis;

- number of samples for contamination sampling;

- number of persons having caused contamination.

3. Determination of the analytical step in which there is a probability of contamination;

4. Specific activity that led to contamination (human factor, machine, procedure), (FSR, 2017).

In the collection of DNA material, it is essential to use sterile or disposable material and reagents from suppliers applying ISO18385:2016 – standard regulating contamination of consumables (ISO, 2016). Unintentional contamination at the consumables and reagents manufacturers, as well as high sensitivity of DNA testing, can obstruct and prevent successful forensic analysis and jeopardize the integrity of material evidence. Standard ISO 18385:2016 has been developed for such reasons, and with the aim of ensuring and improving production quality of consumables used throughout the forensic process. This standard, published in

2016 and revised in 2017, defines requirements for the production of materials and products used in collection, storing and analysis of biological material for forensic purposes, but not of consumables and reagents. Consumables and reagents covered by this international standard include those used in collection of evidence (sampling kits), such as swabs and packaging, as well as products used in DNA sample analysis. The standard refers to consumables used on the spot, in collection of evidence, consumables used in laboratory analyses and personal protection equipment (ISO, 2016). If companies producing the equipment do not apply certain measures to prevent contamination, this can lead to possibly wrong forensic results (Balk & Carly, 2015).

DNA ELIMINATION DATABASE

Notwithstanding numerous measures applied with the aim of preventing contamination, it is impossible to eliminate it entirely. For that reason, laboratory should define a tolerance level based on each methodology, technology and sensitivity requirements. Detecting the contamination incidents is of crucial importance for the improvement of laboratory procedures. This is why it is necessary to have elimination base, which is considered a prerequisite for accreditation (FSR, 2014). Elimination database containing genetic profiles of laboratory personnel, non-laboratory personnel having access to the laboratory (technical personnel), and of personnel that were in contact with items and traces recovered at a crime scene (forensic personnel involved in investigation, medical personnel), (European Network of Forensic Science Institutes [ENFSI], 2017). In order to ensure fast identification of contamination cause and elimination thereof, it is important to establish a DNA elimination database.

The National DNA Database of Switzerland stores profiles of the entire forensic personnel, those who recover traces on the crime scene, as well as laboratory personnel, so as to detect and eliminate potential contaminations (Basset & Castella, 2018). A total of 709 contaminations were detected in the period between 2011 and 2015. Almost 86% of these contaminations originated from police officers, only 11% were caused by DNA laboratory personnel, while 3% were related to other sources. It is interesting that direct contact between samples and contaminants happened in only 51% of laboratory contaminations. High share of indirect transmission of DNA in laboratories can be explained with presence of "DNA source", which indicates that cleaning and decontamination procedure should be improved. At the police level, majority of contaminations originated from persons that had collected traces and they probably occurred directly on the crime scene. Improvement of sampling practice can be useful for reduction of these contaminations (Basset & Castella, 2018).

ESTABLISHING AND IMPROVING CROSS-BORDER COOPERATION

Identifying and eliminating the contamination problems, and fulfilling other requirements set forth in newly revised standard ISO 17025:2017 in the course of forensic procedure will enable establishment of a quality assurance system which will ensure valid and reliable results of forensic laboratory analyses. Hence the National Forensic Center of the Ministry of Interior, Republic of Serbia, will reconfirm the already existing accreditation and retain conditions for international exchange of results obtained in conducted analyses, thus improving cross-border cooperation between police and judicial authorities of the European Union member states with the aim of achieving more efficient actions against terrorism and

cross-border crime. Stepping up cross-border cooperation (Prüm Decision), a legal instrument obliging all European Union member states, implies automated access to DNA profiles, dactyloscopic data and certain national vehicle registration data. The Decision originates from a multilateral agreement signed in 2005 by seven states: Belgium, Germany, Spain, France, Luxemburg, Nederland and Austria. This Decision was cast into a binding legal document for all EU member states. The task of all EU member states is to establish national databases and automated access to data – DNA analyses, automated systems for identification of fingerprints and vehicle registration data. This creates a possibility to compare DNA profiles and fingerprints recovered from the crime scene in one state to profiles stored in databases of other European Union member states. Numerous countries in Europe and worldwide possess operative DNA databases and exchange data in compliance with regulations in place.

The Republic of Serbia, as a member of the Council of Europe and country in the EU accession process, has to create legal conditions for the establishment and maintenance of DNA registry. One of the requirements resulting from the Action Plan for Chapter 24 in negotiation with the European Union is to establish national DNA database. In addition, all EU member states are obligated to introduce automated data exchange with highest possible personal data protection.

Provisions of the European legislation oblige the Republic of Serbia to transpose European regulations in its own legal system. Adoption of the Law on National DNA Registry will be followed by preparation of a bylaw that will regulate the way of registry maintenance and closer conditions for exchange and transfer of data from the registry. Serbia will therefore achieve full compliance with European regulations.

The Government of the Republic of Serbia adopted the National Program on EU Integration in 2008, stipulating the development of the national DNA database as a part of police cooperation and combat against organized crime. In order to introduce automated exchange of DNA data, the Law on National DNA Registry was adopted in March 2018. The Registry will be created within two years from the entrance into force of the aforementioned law and it will be established with the aim of conducting criminal proceedings, determining identity of missing and unidentified persons, bodies and body parts. The objective of the adopted law is to establish a unified DNA database needed for conducting criminal proceedings and exchanging data from DNA database, in compliance with national and international legal provisions.

According to the Progress report on implementation of activities for the period between July and December 2017, pertaining to Chapter 24, i.e. to implementation of the Prüm Decision, the following activities have been implemented:

- legal and institutional frameworks have been analyzed, as well as technical equipment for automated DNA data exchange, fingerprint data and data about owners of motor vehicles;

- legislation for the collection of biometric data and storing thereof in national central databases has been harmonized, as follows: harmonization with international laws on police cooperation and justice, centralization of important IT systems, especially necessary creation of a unique national DNA and AFIS database, Law on National DNA Registry has been adopted which is essentially needed, as well as establishment of a unified National DNA Registry;

- working group for meeting the requirements of the negotiation process in Chapter 24 has been established, in particular with regard to implementation of Prüm Decisions, formation of new operational line, only for DNA profile registry (DNA analysis of indisputable samples), contracting more employees in the Section for DNA Registry and Expertise, on positions for dactyloscopic analyses, additional equipment for DNA analysis of indisputable

samples has been procured, which will speed up and ensure quality and updated entry of DNA profiles (Ministry of Interior, 2017).

CONCLUSION

Establishing a quality assurance system through consistent implementation of international standard ISO/IEC 17025:2017 in forensic processing of material evidence, starting from the crime scene through the laboratory analyses, is an essential prerequisite for validity of material evidence and international exchange of forensic analyses results. The Ministry of Interior of the Republic of Serbia is dedicated to maintaining the established accredited methods and existing quality assurance system, but also to further development, as future positive dedication and further improvement of this operative segment.

In order to ensure faster and more successful implementation of new standard ISO/IEC 17025:2017, achievement of unique quality by introducing standards in the area of forensic science in the Republic of Serbia, it is necessary to:

- raise the level of forensic awareness, implement all requirements contained in this new standard, improve the level of work quality applying gradually the requirements set forth in ISO/IEC 17025:2017 standard;

- balance technical and human resource criteria: space, equipment, procedures, personnel competence;

- implement continuous training and personnel competence assessment, assess all identified risks in the forensic process, manage risks, apply periodic certification of personnel for certificate reference disciplines;

- improve cooperation between FCS and regional police administrations in order to achieve equal quality of competence in the crime investigation activities.

Following and applying international standard ISO/IEC 17025:2017, as well as documents in the area of forensic science through the improvement of working quality based on accreditation process will provide for:

preservation of credibility of material evidence in criminal proceedings – establishing chain of custody, as assurance of credibility and integrity of material evidence;

- competence in conducting forensic tasks (education, training, experience, knowledge, skills and abilities);

- international recognition of analysis results and enabled fast and automated exchange of forensic databases in compliance with the Prüm Decision.

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THE DOCTRINE OF SPECIAL KNOWLEDGE IN CRIMINAL PROCEEDINGS AND ITS INFLUENCE ON THE FORMATION OF THE SYSTEM OF FORENSIC EXPERTOLOGY

Elena Alexandrovna Zaitseva, PhD
Volgograd Academy of the Interior Ministry of the Russian Federation,
e-mail: zaitceva-expert@rambler.ru

Abstract: The article discusses debating points of defining the subject and system of forensic expertology, presents the justification against the expansion of the subject matter of expertology and at the same time - the system of the expertology science by including other procedural forms of special knowledge into the circle of its cognitive sphere. The suggestions of a number of scientists about the necessity to include provisions on a specialist into the system of forensic expertology are criticized. In handling the controversial aspects of a scientific discussion, the author proceeds from the criminal procedural regulation of the status of a specialist and an expert as different subjects who have independent functions in criminal proceedings. Based on the analysis of establishing the institution of competent persons, the legal institute of forensic examination as well as the institution of a specialist in the Russian criminal-procedural law, the author concludes that the procedural functions of a specialist and a forensic scientist should not be mixed. From the author's point of view the ideological reference point while determining the essential differences between the procedural figures – a specialist and a forensic scientist – should be the legal positions of the Plenum of the Supreme Court of the Russian Federation and the Constitutional Court of the Russian Federation. These supreme judicial authorities emphasize that within the criminal procedural activities the specialist has no right to make an examination. If it is necessary to make a study to establish the circumstances relevant to the criminal case, a forensic examination should be assigned. This legal practice is also accepted by the European Court of Human Rights while examining the complaints of citizens of the Russian Federation. Given these legal positions of the highest judicial instances, it is justified that it is inappropriate to include provisions on a specialist in the forensic expertology, since such an approach contradicts the very purpose of this branch of knowledge created by the efforts of various scientists as a science studying the laws of forensic expert activities.

Keywords: forensic expertology, the system of forensic expertology, competent persons, legal institute of a specialist, legal institute of forensic examination, forensic expert activities.

Last year, in 2017, the Russian forensic community celebrated the 95th anniversary of Raphail Samuilovich Belkin - one of the brightest representatives of criminology of the Soviet era and modern times. His contribution to the development of Russian criminal science, to

the definition of the subject and system of this science cannot be overestimated. The ideas of Professor R.S. Belkin currently form the foundation of the Russian criminal science, set the direction for the development of certain promising areas, and contain the potential for the formation of new concepts and private criminalistics theories.

A special subject of the creative interest of Raphail Samuilovich Belkin was the systematization of scientific knowledge in the field of forensic examination. These aspects were repeatedly analyzed by him in the framework of individual articles [7] and at the monographic level [4], [5], [6]. In Chapter 8, "Criminalistic Expert Examination and Criminalistics Theory" of the second volume of the Criminalistics Course of the year 1997, the professor systematized the scientific data on the theory of forensic examination. This research contains a detailed study of the historical background of "separation of criminalistics science into the science "for investigators" and the science "for experts", attempts to develop the theoretical foundations of the "science of forensic expertise "and then "the general doctrine of forensic examination" by Soviet criminalists.

Assessing positively the contribution of various scientists to the creation of the foundations of forensic expertology, R.S. Belkin highlighted the position of A.I. Vinberg and N.T. Malakhovskaya, who formulated the definition of forensic expertology in 1973. These authors proposed to refer to forensic expertology as the science dealing with "the laws and methodology of the formation and development of forensic examinations, patterns of examination of their objects carried out on the basis of special knowledge brought from the basic (maternal) sciences and transformed through comparative forensic expert studies into a system of scientific procedures, methods, tools and techniques of solving the problems of forensic examinations conducted within the limits of legal regulation and in those organizational forms that provide evidential significance in the case of judicial expert opinions in criminal and civil proceedings "[9, p. 49]. In this step, R.S. Belkin saw the productive development of A.I. Vinberg's ideas about the need to develop a common doctrine of forensic expertise, generated by this scientist back in 1961 [6, p. 272].

Before presenting further analysis of the scientific views on the problems of the general theory of forensic examination, which is also called expertology, explanations should be given on the issue of the application of the special knowledge in the Russian criminal procedure legislation, since this material is of particular importance for understanding the essence of the scientific problem of defining the system of forensic expertology.

Special knowledge of competent persons has always been in demand in the proof of criminal cases, even at a time when the science of criminal procedural law has not yet reached the proper development level, which makes it possible to clearly identify the legal status of the participants possessing special knowledge, and the law itself referred to these persons as one general term – "informed people ". We hasten to clarify that the current state of the criminal procedure law and the applicable branch legal sciences allows us to affirm with deep conviction the existence of two unique legal institutions, two normative communities in the criminal procedure branch of law that regulate the participation of the informed persons such as a specialist and expert in the criminal process.

At the same time, it should be emphasized that the legal institution of a specialist, as a set of norms of the criminal procedure law regulating the legal status of a specialist and his participation in criminal proceedings, was virtually absent from the Criminal Procedure Charter of 1864, as well as the institution of forensic examination, because in the legislative vocabulary of that period there were no words "specialist", "expert" or "examination".

The theoretical foundations of these two normative communities have not yet been finalized (meaning the previously mentioned insufficient development of the criminal procedure science at that time). Therefore, the legislator did not distinguish the specifics of participation

in the case of competent persons, referring to them, as in earlier normative acts, as "informed people". In this regard, we believe that L. Isayeva is absolutely right, when she correctly calls the participation of such persons an "independent form" of using special knowledge in the criminal process, emphasizing that "informed persons" really were **only a prototype of a modern specialist and expert** [18, p. 46].

In fact, with reference to the Statute of Criminal Procedure of 1864 [32], it is possible to speak about the legal institution of informed persons, to whom the legislator devoted quite a lot of normative materials (articles 112-114, 144, 192,193, 315, 325-328, 330 -334 and others - about 40 articles), even outlined in the text of the Statute the requirements for these persons who were supposed to have "all the qualities of reliable witnesses". It was from this normative community that later, in the Soviet period, a legal institution of forensic examination appeared, and then, with the adoption of the criminal procedure legislation of the union republics in 1959-1962 [24], [31], the legal institution of a specialist was formed.

The specified sequence of the formation of the normative entities analyzed by us in the structure of Russian criminal procedure law is a historical fact that must be perceived as a specificity of Russian legal reality as a "special way" for the establishment and development of an institution of competent persons, different from the "Western" understanding of the role of competent persons in criminal legal proceedings. This was very accurately said by V.N. Makhov in his classic work on special knowledge [20, p. 24].

It is this conceptual approach to understanding of the essence of the expert and specialist activities (in compliance with national traditions) that was reflected in the original edition of the Criminal Procedure Code of the Russian Federation. This approach was also apprehended by the European Court of Human Rights and is reflected in the justification of the decision in the case "Matytsina vs. the Russian Federation" dated March 27, 2014. The European Court in paragraph 167 of the said resolution stressed "the difference in the legislation of the Russian Federation between two forms of expert evidence: the "experts" opinion and the "specialists" opinion, oral and written ". (Let us explain that "expert evidence" in the practice of the European Court of Human Rights refers to "the sources of information that ... contain scientific, technical and other similar analysis of these facts" [10]).

And although the legislator in 2003, in connection with the adoption of the federal law N 92-FZ dated 04.07.2003, also gave the specialist the right to give an opinion as an expert, thereby making a certain confusion and imbalance in the status quo that existed at that time, nevertheless, he remained faithful to the very conceptual approach, which differentiates the purposes of involving a specialist and an expert into the criminal proceedings. The position of the legislator was reflected in the text of Part 1 of Art. 80 of Criminal Procedure Code of the Russian Federation (normative definition of the expert's opinion) and part 3 of Art. 80 (legitimate definition of the specialist's opinion). The literal interpretation of these two norms in systemic unity clearly shows that the expert's opinion is the results of an expert's study, and the specialist's opinion cannot be that way, because it reflects the specialist's judgment based on his special knowledge - without undertaking a study (otherwise the legislator would also use the word "study" when formulating the definitive norm in part 3 of article 80 of the Criminal Procedure Code of the Russian Federation).

This seemingly obvious circumstance, which is available for clarification during statutory interpretation, is differently perceived by a number of authors who believe that this provision (Part 3, Article 80 of the Criminal Procedure Code of the Russian Federation) does not explicitly prohibit a specialist from undertaking study, as an expert does, and drawing conclusions [33, p. 131].

What can this statutory interpretation lead to? We believe - to "blurring" the boundaries between the expert and the specialist, to the erosion of the legal institution of forensic

examination. In this case, the existence of two similar procedural parties, possessing special knowledge, undertaking study, formulating conclusions and reflecting them in their opinions, becomes meaningless. Why are there two different participants with the same functionality in the criminal proceeding? So that one "serves" the prosecution side, and the other - the defense side? It seems that this way is clearly contrary to the national traditions, in the spirit of which the legal institute of a specialist and the institute of forensic examination developed. It also contradicts the principle of saving normative material, which should be used by law drafters. It is unlikely that the authors of the federal law N 92-FZ dated 04.07.2003 planned to introduce a specialist into the criminal process as a "procedural clone" of an expert with the same objectives, the same legal instruments and forming the same opinion as the expert.

What such "procedural cloning" experiments lead to can be seen by experience of our neighbors. Thus, in the Republic of Kazakhstan, during the law enforcement reform, the production of forensic examinations turned out to be in the hands of one agency - the Ministry of Justice. The employees of the expert divisions of the Ministry of Internal Affairs of the Republic of Kazakhstan were deprived of the right to make forensic examinations, which entailed serious organizational difficulties caused by insufficient staffing of expert institutions of the Ministry of Justice of the Republic of Kazakhstan, a great need for expert services that could not be provided by the efforts of the employees of one agency. In order to solve the problem of organizational nature, the Kazakhstan legislator took an unprecedented step - a new procedural form of applying **special knowledge was introduced specially for the staff of the expert divisions of the Ministry of Internal Affairs of the Republic of Kazakhstan – undertaking a study by a specialist.**

In fact, in the norms that regulate giving an opinion by a specialist, the regulations fixing the procedure for the production of forensic expertise were duplicated. So, in Article 117 of the Criminal Procedure Code of the Republic of Kazakhstan [30] it explicitly stated that when undertaking a study by a specialist and obtaining an opinion from him, the provisions of Chapters 34 and 35 of the Criminal Procedure Code of the Republic of Kazakhstan are applied, which establish the procedure for the appointment and procedure of forensic examination and obtaining samples for a comparative study. And comparison of the requirements of the law to the contents of the expert's conclusion and the specialist's conclusion shows their complete match (Article 117 and Article 283 of the Criminal Procedure Code of the Republic of Kazakhstan), up to criminal responsibility for giving knowingly false opinion and procedures for the submission study materials to these opinions.

Thus, in the criminal process of the Republic of Kazakhstan there are **two types of concurrent similar evidence, differing from each other only by the departmental affiliation of the persons who make them!**

It seems that such legislative technique does not only contradict the principle of procedural economy, but fundamentally changes the appearance of the institution of special knowledge in criminal proceedings - contrary to the traditional approaches, reflected, among other things, in Articles 118 and 119 of the Model of Criminal Procedure Code for member states of the CIS [21]. So, in part 2 of Art. 118 of this act it is unequivocally stated that "The opinion expressed by the specialist does not replace the expert's opinion."

An attempt to revise the traditional approach to understanding of the legal nature of involving a specialist and an expert in the criminal case can also be found in the text of the Criminal Procedure Code of the Kyrgyz Republic [28]. And although the evidence in this new act lacks a specialist's opinions, nevertheless, in Part 9 of Art. 163 of the Criminal Procedure Code of the Kyrgyz Republic it is stated that "if an official document has been drawn up in the course of conducting an investigative action by a **specialist on the results of the examination**, then it shall be attached to the protocol, which is recorded accordingly." This quotation

shows that the Kyrgyz legislator does not distinguish in the Criminal Procedure Code the procedural activity carried out by a specialist within the framework of criminal procedure relations and the non-procedural acts of an employee of a forensic unit assisting in the crime solution and gathering suspect profile information.

Of course, the adopted version of the Criminal Procedure Code of the Kyrgyz Republic differs significantly from what was previously published, which contained more normative material of a contradictory nature [29], about which some researchers have written [26, p. 144-146]. Nevertheless, we cannot but deny the obvious: a mixture of procedural and non-procedural forms of application of special knowledge in this legislative act.

The same mistake, we believe, is made by I.S. Fedotov, when commenting on the case law of the Russian Federation Supreme Court Plenum, formulated in paragraph 20 of Resolution No. 28 "On forensic examination in criminal cases" [22]. I.S. Fedotov believes that the ban to conduct a study should not apply to situations where a state expert is invited by a specialist to conduct a study at the request of the defense counsel. Once he receives the task of the defense counsel through the head of this state expert institution, he should draw up the results of the study in an **act of forensic study**. "That is, in fact, he carries out a full-fledged study that provides forensic examination, but since it is conducted at the request of the defense counsel, its results are formalized as an act of forensic study, which we believe should be recognized as evidence as a different document" [33 , from. 132], this author concludes. In fact, he gives the status of a specialist in the sense of art. 58 of the Criminal Procedure Code of the Russian Federation to an informed person who is not officially involved in criminal proceedings: it must be taken into account that the involvement of a specialist in proving in a criminal case is at the discretion of the leading subjects – the officials of the preliminary investigation bodies or the court, but not the defense counsel who is not vested with power to explain the rights, duties and responsibilities of a specialist. Consequently, a staff member of a state forensic expert institution will not be a specialist in the situation described, and the relationship that arises between him and the defense counsel about giving such an act can hardly be called procedural because of their lack of proper regulation by the current Criminal Procedure Code of the Russian Federation.

Here again it is necessary to pay attention to the principled approach of the supreme national courts of law: the expert should not undertake a study in the criminal process; if there is a need to establish an important fact, a forensic examination should be appointed through the study on the basis of special knowledge. This approach, effectively formalize: in paragraph 1 and paragraph 20 of Resolution No. 28 of the Russian Federation Supreme Court Plenum, found support from the Constitutional Court of the Russian Federation. So the Constitutional Court of the Russian Federation, considering the complaint of P.V. Astakhov, in the descriptive and motivating part of its definition, confirmed the legal proposition of the Russian Federation Supreme Court Plenum, noting that the specialist does not conduct studies, and his opinion is not a conclusive knowledge, reflecting only the judgment of a specialist on the questions posed to him [23].

We believe that it is these legal propositions that should serve as a guide for the scientists, for practitioners and drafters of federal laws aimed at modernizing existing standards of evidence with the participation of a specialist. They correspond to the national legal traditions, they are logical and allow preserving the "purity" of two legal institutions – that of a specialist and the forensic expertise institution - in the Russian criminal procedure law.

These important legal propositions of the supreme judicial authorities serve as the ideological basis for solving an important theoretical issue – defining of the subject and the system of forensic expertology, because they make it possible to clearly outline the scope of scientific interest of forensic expertology solely by the activities of a forensic expert.

These legal propositions are based on a clear and consistent interpretation of the "spirit and letter" of the Criminal procedure law, **taking into account the national traditions of the formation of the legal basis for forensic examination.**

Returning to the problem of defining the system of forensic expertology, we emphasize that the analysis of the concepts formulated by the well-known Russian criminalists T.V. Averyanova [1], S.F. Bychkova [8, p. 147] in this part, and reflected by R.S. Belkin in the second volume of the Forensic Course, shows that neither of the scientists included the ***legal basis of the forensic examination as part of this system*** (hereinafter, put in bold by the author - E.A.Z.).

In this case, R.S. Belkin objected to the viewpoint of A.I. Vinberg, N.T. Malakhovskaya, and also A.R. Shlyakhova, Yu.G. Korukhova [19], I.A. Aliev [3], who considered the "legal (procedural) and organizational bases of the expert activity as elements of forensic expertology or a general theory of forensic examination" [6, p. 291].

The main thesis in the reasoning of the counter-arguments by Rafail Samuilovich on this aspect was based on the "purity" of the subject area of forensic expertology, on the desire to clearly identify the subject of this science[1] in order to distinguish it from other sciences studying a complex legal phenomenon - forensic examination.

Here is what R.S. Belkin wrote about this: "the legal basis of the examination is formed under the influence of the ***objective laws that constitute the subject of procedural science***[2], and not the subject of criminalistics. The examination theory must take these foundations as ***the data of another science*** and as statutory and not to include them in its content, for the **content of science is the result of its knowledge of its own subject, *and not the subject of other sciences*** "[6, p. 291, 292].

It seems that this is a very correct conclusion for that period of development of the criminal science, the criminal procedure law science and the forensic expertology itself. The matter is that at that time the interdisciplinary federal law No. 73-FZ dated May 31, 2001 "On state forensic expert activity in the Russian Federation", which established the general legal bases for the functioning of state forensic institutions, general provisions on the status of a forensic expert and the head of a state forensic expert institution. In the period of preparation of his fundamental three-volume work by Rafail Samuilovich, the legal basis for forensic examination was regulated by the norms of branch legislation, which predetermined logically the inclusion of these legal bases in the subject of the appropriate branch legal sciences.

In fact, this is what E.R. Rossinskaya writes about, analyzing the views of the scientists on the system of forensic expertology: "The main differences between the concept of T.V. Averyanova (and here she associates herself with R.S. Belkin ...) on the structure of forensic examination general theory quoted hereinabove are primarily related ***to the exclusion of consideration within the framework of forensic examination general theory of legal and organizational bases of an expert activities*** ... But what did not provoke objections 20 years ago does not meet the realities of today, when the task of legal approximation of forensic activities, irrespective of the type of process, became urgent "[27]. Elena Rafailovna further

1 As is known, ***the system of science always reflects its subject of knowledge*** (see, for example, [34]).

2 However, according to O.G. Dyakonova, "the procedural aspects that can be covered in the definition of the subject of science by the concept of "legal basis" should also be included in the subject matter of forensic expertology, although they are also a subject of study of the procedural branches of law and law of evidence " ([12, p. O.G. Dyakonova writes further: "In fact, we are referring only to the patterns of the implementation of those activities that involve the use of special knowledge, without going beyond it and not encroach on the subject of investigation of procedural law or law of evidence, which is to some extent interrelated with the subject of forensic expertology" . Nevertheless, this article does not explain what procedural regularities are not included in the subject of legal branch sciences, we are talking about.

clearly explains the influence of these tendencies on the subject (and, accordingly, the system) of forensic expertology: "The theoretical basis of the ***legal***, but not ***procedural***, and scientific and organizational support of forensic expert activities should be developed ... particularly by forensic expertology - the science of forensic examination, while procedural aspects remain under the jurisdiction of procedural law sciences "[27].Taking this into consideration, she sums up, the study of the objective laws of forensic expert activity a priori assumes a study of the ***objective laws of the uniform legal*** and organizational support for this activities, regardless of the type of procedural relations in which the activities of the forensic expert are vested.

If the abovementioned reasons regarding a unified format for the legal support of a forensic expert activities are seen by us to be justified and, in fact, are compliant with the previously expressed judgments about a certain similarity of the legal aspects of these activities in different types of legal proceedings [15, p. 121-122], then the further summary concerns us: "The unity of the integrated nature of all kinds and types of forensic examinations irrespective of the type of process dictates the unity of the ***procedural forms of the use of special knowledge, and not only forensic examinations.*** All the processes intuitively go towards this, but within ***the framework of expertology*** it is possible to develop unified approaches to obtaining evidence ***using specialized knowledge***. "

We believe that the realization of this idea to expand the subject and at the same time - expertology science system by including other procedural forms of special knowledge in the circle of its cognitive sphere, contradicts the very purpose of this branch of knowledge created by the efforts of various ***scientists as a science studying the objective laws of forensic activities.***

An attempt to offer an unreasonably expanded vision of the subject matter of forensic expertology led to the allocation in the model of its general structure of section 2, "Legal support of forensic expert activity", the content of which also causes a number of objections.

In particular, we do not agree with the wording "expert ***as a subject of law enforcement and lawmaking activities***". First of all, when analyzing this statement, one should start from the classical understanding of law enforcement activities, which in the general theory of law is considered to be the authoritative individual legal activity of competent authorities and persons aimed at resolving legal matters [2, p. 254-259], [25]. Under any conditions, an expert cannot act as a subject of this activity, without being vested with power. However, the expert can be involved in the relevant legal relations by authoritative subjects of law enforcement activity (and this is another accent!).

Concerning lawmaking activities (in its precise, narrow sense), it should also be noted that the legal theorists recognize the activities of competent bodies and organizations in the development and adoption of normative acts [11]. An expert as an individual does not have the right of legislative initiative. However, the Internet opportunities for citizen participation in lawmaking by giving feedback on bills, including those posted by ministries and agencies on the website http://regulation.gov.ru/ , by posting on the website "Russian Public Initiative" (https://www.roi.ru/) of its own proposals on amending legislative acts and advanced their own ideas about the advisability of adopting new laws and subordinate acts should be also taken into the account (14, p. 48].

In that way, the use of the words ***"subject of law enforcement and law-making activity"*** in relation to the expert without special explanations and exceptions is not entirely correct. Especially when it comes to an expert as a party to legal relations in the framework of any jurisdictional activity.

Further, the idea of including in clause 2 of the taxonomy of expertology of provisions on ***"a specialist as a subject of law enforcement activities"*** also provokes objections. First, for the reasons previously stated in relation to the expert. Secondly, taking into account the fact that

the activity of a specialist is not a forensic expert activity, the laws governing the formation of the legal basis for its procedural activity within the various types of legal proceedings should be the subject of a study of the relevant branch of law, and the technology of its activities with participation in the exposure and investigation of crimes - the subject of science of criminology.

We believe, that an attempt to broadly interpret the very concept of "expertology": "the term "expertology" literally means "the theory of the informed"(informed persons, their knowledge)" does not justify such an "enrichment" of the subject of forensic expertology [13, p. 126]. The fact is that the term "expert" in the legal sciences has long been understood in a specific, particular meaning, as a person participating in procedural relations who has appropriate procedural status. To reduce this term to the common one "informed" (in the everyday use, anyone who understands anything can be called "expert") - this means to return to the origins of the establishment of the legal institution of informed persons, when there was no legislative differentiation of the forms of application and use of special knowledge.

In the context of the foregoing, it should be noted that in the modern conditions, attempts are being made to justify the existence of an independent branch of knowledge - "speciology", the subject of which are objective laws of the specialist activities. In this regard, after analyzing the ideas of the developer of "speciology", the author of this article asked the question: "What then prevents the creation of the study like"Translatorology "," Witnessology "- by analogy with the subtheory that the author S.P. Zhdanov is planning to develop? "[16, p. 168-175].

Continuing the analysis of the components that fill Section 2 of the expertology (according to Professor E.R. Rossinskaya), I would like to object to the inclusion in the system of ***"evaluation features" of the expert's opinion "and its use in legal proceedings"***. We believe that this component is the exclusive property of the branch legal procedural sciences since it is directly related to the use of evidence to justify procedural decisions.

Thus, we can summarize the results of our discussion on the subject and systematics of forensic expertology with a rigid formula: ***"forensic expertology - only about experts and examination"!***

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THE RESEARCH OF SAME SOURCE TEST METHOD OF MONITORING VIDEO BASED ON PATTERN NOISE

Fangzhou he[1]
Criminal Investigation Police University of China

Abstract: Because of the digitized features of monitoring video data currently- and video editing tools are becoming more and more powerful. Such situation makes the monitoring video data easier to be modified and forged, and editing traces of tampering is hard to find. Thus, the traditional test methods of monitoring video are facing severe challenges. Although the monitoring video data contains a lot of physical property information, such as resolution, complexity rate, length of time and coding format, there is a lack of information about the video-shooting equipment. Therefore, how to accurately determine the monitoring video shooting equipment has been technical difficulty for judicial inspector.

This paper tries to form a set of perfect monitoring video same source test solution. The rest of this paper is structured as follows: In section 1 we analyze the purposes and means of monitoring video tampering. In section 2 we describe normal digital forensics technologies. In section 3 we discuss monitoring camera sensors in the imaging process that produce the causes of equipment noise. In section 3 we develop pattern noise extraction algorithm for monitoring video data. In section 4, we seek comparison method for pattern noise among monitoring video frames. In section 5, summary and conclusion are presented.

Keywords: Monitoring video data, Video-shooting equipment, Same source test solution, Pattern noise.

THE PURPOSES AND MEANS OF MONITORING VIDEO TAMPERING

In recent years, with the rapid development of computer technology and modern network technology, various kinds of digital products have been born, especially digital cameras and digital video cameras, which have been popularized by ordinary families. Due to the development and progress of computer technology, video editing has become relatively easy. Ordinary users have more opportunities to access digital multimedia editing software. These digital tools can be easily used to manipulate and tamper with digital information in a variety of ways. No obvious traces remain, thus making it real.

The rapid development of the Internet makes it easier to share information resources and easily obtain online video information. Many people benefit from the Internet to collect and share information about multimedia content. However, there have also been cases where ma-

1 Corresponding author: Fangzhou He. E-mail: ceo_xp@msn.com. Office Tel: 024-86982397. Cell Number: 18940177220

liciously tampered video resources have spread over the Internet, leading to vicious incidents. Today, some social networking applications such as Facebook, Flicker, QQ, and Twitter are very popular, and people can easily find many different digital resources from these social networking sites. At the same time, problems have arisen with the popularity of video editing software. If some videos are malicious videos that have been maliciously modified and spread unscrupulously on the Internet without any supervision, it will not only seriously affect people's judgment on the facts, but may even cause unpredictable and adverse consequences.

Under the background of the rapid development of computers, networks, and image processing and transmission technologies, video surveillance technology has been widely applied in all walks of life. Such as road traffic, shopping malls, stations and other daily life, and even military equipment and security and other important areas. The monitoring equipment in these places can provide complete video and image information, so as to judge the behavior of things on the basis of this, and be used for security inspections, ex post facto collections and other activities to escort public security. For example, according to the monitoring information provided, it can effectively assist the relevant department personnel to handle the crisis and minimize the phenomenon of false positives and false negatives. However, a very small number of people tamper with and spread the video in order to obtain commercial benefits and personal rewards. If this type of video is used for ex post facto forensics or refereeing, it will undoubtedly mislead people to accurately judge things; if it is used in judicial forensics, it will lead to misjudgment and other situations, which will cause more innocent people to suffer grievances; if it is used in such important areas as military affairs, security inspections and diplomacy, it may cause military conflicts, political turmoil, and diplomacy, as well as various political and social stability impacts and harms.

In China, with the gradual improvement of large-scale systems such as Skynet and Smart City, surveillance video has been widely used. Monitoring is not only a record of criminal offenses, but it also reminds people to behave with caution and deterrence against those criminal activities that attempt to harm society. On the other hand, the perfection of monitoring systems in various countries is also to resolve disputes in the courtroom. This is why the judicial sector has increasingly used video surveillance as evidence in recent years. According to a new report from IMS Research, from 2012 to 2017, the global urban electronic security equipment will expand at a compound annual growth rate of 17.8%. By 2017, wireless infrastructure and CCTV and video surveillance equipment will grow from $1.4 billion in 2012 to 32 billion U.S. dollars[2].

Video not only enriches our lives as entertainment, but also serves as an information dissemination tool, spreading all kinds of information. Video plays a major role in all sectors of society, including transportation, justice, security, entertainment, media, and education. For example, in terms of security, city surveillance is the main tool for the police department to manage the metropolitan area. When the police encounter an emergency event, they can enter the video surveillance feedback from the mobile command center. This observation can effectively respond to any incident quickly and achieve a reduction of the crime rate.

Currently, because of the digital feature of monitoring video data, and video editing tools are becoming more and more powerful. Such situation makes the monitoring video data easier to be modified and forged, and editing tampering marks are hard to detect. Therefore, the traditional methods of detecting the authenticity of monitoring video are facing severe challenges. In order to identify video tampering behavior accurately, we must first understand the current common video tampering methods.

2 Leida Li, Xuewei Wang, Gaobo Yang, Guozhang Hu. Detecting Removed Object from Video with Stationary Background [J]. Digital Forensics and Watermaking, 2012, 11.

Interframe tampering is usually a batch insertion or deletion of monitoring video frames, the tampering of single frame is rarely encountered (see Figure1). If the suspect wants to achieve the purpose of making a crime or getting off the hook, usually requires a lot of frame deletion or frame insertion. There are three types of interframe tampering methods: frame deletion, frame replication, and frame insertion (Chetty, G. Biswas, & M. Singh R, 2010). Before tampering a monitoring video, the monitoring video must be decoded into a single video image sequence, and then some of the series of images will be deleted, or other images will be inserted into the sequence. Finally, the image sequence is compressed into a new monitoring video.



Figure 1 *Fake news about the nuclear explosion in Bohemia*

The basic steps of monitoring video frames deletion tampering are: Firstly, decode the video as an image sequence; Secondly, delete the unnecessary frames from image sequence; Finally, the remaining image sequence is recompressed as a tampered monitoring video. The purpose of monitoring video frames deletion tampering is to hide some of interest targets in the original video.

The basic steps of monitoring video frame replication tampering are: Firstly, decode the video as an image sequence; Secondly, copy a sequence of video images, and insert such images into the original video; Finally, compress the tampered image sequence into a new video. The purpose of monitoring video frame replication tampering is to extend the duration of an activity for a particular target in the original video. For example, someone enters a room at 12:00, comes out at 12:10, but there was a burglary in the room at 12:20. In order to pretend that the person is guilty, the frames with stationary background in monitoring video can be copied, and then insert such frames between the person entered and left the room. So the tampered monitoring video may show that the person came out of the crime scene after 12:20.

The basic steps of monitoring video frame insertion are similar to frame replication. Firstly, decode the video as an image sequence; Secondly, insert a new image sequence into the original video frequency sequence, or replace a part of image sequence of original video; Finally, compress the tampered image sequence, and form a new monitoring video.

Video frame tampering means to tamper the contents of video screen (see Figure2). There are two types of video frame tampering methods: target removal tampering in video frame, target migration into video frame (Lin C. Y. & Chang S. F, 2011).



Figure 2. Video timestamp tampering

The basic steps of target removal tampering are: Firstly, decode the video as an image sequence; Secondly, remove an object in the foreground or background of frame sequence, so that the viewer cannot visually detect the removal of object. For example, some video programs have their own logos, in order to steal video resources, pirates remove the logos and claim their own video resources.

Target migration tampering refers to adding a series of targets in a decompressed video frame. The target can be stationary target or moving target. If it is a stationary target, the target only needs to be embedded in the position of each frame. For a moving object, it is also necessary to predict and synthesize the status and position of the sport, the difficulty of such tampering is relatively high. In the American film "Highly Doubt," the actor was framed by a cigarette butt which was tampered in the video evidence.

The principle of passive detection of video tampering is mainly based on the following points: First, video tampering is detected by the consistency of the imaging device. Each video image contains some parameters of the video device (Leida Li, Xuewei Wang, Gaobo Yang, & Guozhang Hu, 2012). For example, the noise contained in the image formed by the same video device is basically the same, and the noise parameters of different video devices are different. Once the video is destroyed, the related parameters such as the noise of the video image will change, so the tampering can be detected according to the consistency of the video device. Second, the tampering is detected by the change of the video feature before and after tampering. The video itself has certain characteristics, for example, optical flow uniformity, energy consistency, continuity of space-time and other related characteristics. Once the video is destroyed, the video-related features will be changed, so the tampering can be detected based on the consistency of these features. Third, the video undergoes tampering. Whether it is to remove the target or add the target, it is done through related software, especially These are some sports goals that will leave behind ghost. By detecting traces of ghost, we can also determine whether the video has been tampered with. In this paper, we focus on the discuss of video noise.

SURVEY ON DIGITAL FORENSICS TECHNOLOGY

With the common development of network technology and computer technology, the term "multimedia" has become something that the general public can understand. It is a combination of multiple media, computer-based or carrier-bearing multiple media, including text, images, sound, video, and so on. Multimedia technology has the following features:

1. The computer is the main body or carrier. All media are based on computers;

2. A variety of media co-exist in the computer, and they have some kind of connection with each other. It is precisely because this connection makes the media closely linked, so it is called multimedia;

3. Multimedia technology is interactive through network technology and the Internet, and users can communicate multimedia through the network.

Video and images are the two most important media in multimedia, and they are also the most easily tampered media. Therefore, digital forensics technology is now mainly studied for these two media.

Digital forensics technologies fall into two broad categories: active forensics and passive forensics. Proactive forensics includes digital signatures and digital watermarks. These forensic technologies require artificial digital signatures and digital watermarking to achieve verification results, and even require third-party authentication. Moreover, these forensic technologies have one of the biggest limitations: they need to add information that ensures that the subjective quality of the image does not drop significantly at the same time when the image is established, and this information must have a certain ability to resist malicious attacks. If the active forensics is to be applied to video image falsification forensics, then the two prerequisites must be satisfied:

1. The watermark information embedded in the video image cannot be removed or altered.

2. The watermark must be embedded before the video image is used.

These two conditions are difficult to satisfy at the same time, because not all imaging devices can automatically add watermarks to video pictures, and once the watermarks are embedded, there is no way to remove them, and the loss caused to the images is permanent. It is for these reasons that it is difficult to satisfy in many practical applications. In the case that the drawbacks of the active authentication technology cannot be achieved, the advantages of video tampered passive authentication technology are exactly complementary to the disadvantages of active authentication technology.

The starting point of video passive authentication technology is that video falsification, although visually imperceptible, the effect of video feature and imaging device consistency after tampering will be changed, so that the video can be judged according to the change of relevant information of these video images. Passive forensics does not require the embedding of certain information in the original image/video. Instead, the original image/video itself is used to determine whether it has been subjected to falsification, synthesis, modification, or other fraudulent activities. Therefore, it is also called blind forensics. Under such circumstances, the study of video passive forensics technology has become more important.

Video tamper passive detection technology determines the authenticity of the video by detecting the inherent characteristics of the video. Compared with active technologies, there are more detection ideas and algorithms for tampering with passive detection technologies. It not only makes up for its shortcomings, but also has its unparalleled advantages, and therefore it is more universal. Nowadays, digital passive forensics technology has become one of the research hotspots, and it is also the main content of this paper.

There are many ways to tamper with digital video/images. There may be only one tamper method in the same digital data source, and there may be multiple tamper methods. Therefore, a single digital forensic technique is difficult to handle multiple falsification methods for evidence collection. In the process of forensics, many methods will be used to detect and accurately locate the tampered area.

Because the active forensics technology is limited by these application conditions, the tampering of multimedia data cannot be fundamentally prevented. Thus, digital forensic technology is now more inclined to passively gather evidence. The digital passive forensics technology can be based on the characteristics of the digital resource itself before and after tampering, and the characteristics of the relevant camera and other equipment (such as the correlation between adjacent frames, the noise characteristics of the camera itself, etc.), without relying on external auxiliary information. The digital passive forensics technology mainly analyzes the difference between the original image/video and the tampered image/video through the change of these characteristics. Based on this, it uses the traces of tampering to identify the authenticity of the digital resource. Digital passive forensics technology has attracted more and more attention from people and has become a frontier research topic in the field of digital processing.

EQUIPMENT NOISE OF MONITORING CAMERA SENSOR

The core of digital equipment is the image sensor. Digital cameras usually use CCD image sensor or CMOS sensor. CCD image sensor directly converts optical signals into digital electrical signals to realize image capture, storage, transmission, processing and reproduction. It has the advantages of small volume, light weight, low power consumption, low working voltage, anti-shock and vibration, stable performance, long service life, high sensitivity, low noise, large dynamic range, fast response speed, etc. Besides, it has the obvious characteristics of self-scanning function, small image distortion, no residual image, production using ultra-large scale integrated circuit technology, high pixel integration, accurate size and low commercial production cost.

However, compared with CCD image sensors, CMOS image sensors are noisy (G. J. Liu, J. W. Wang, S. G. Lian, & Z. Q. Wang, 2011). This problem has been puzzling the development of CMOS image sensors, making them unable to replace CCD image sensors in the field of high quality images temporarily. Therefore, the main video source for this paper is from CMOS image sensor, but it can also be applied to CCD image sensor.

The noise of image sensors can generally be classified into two categories, one is pattern noise and the other is random noise. The mode noise components mainly include fixed pattern noise (FPN) and photo-response non-uniformity noise (PRNU). FPN is caused by dark current, which is mainly related to the difference between pixels. It is a kind of additive noise, and high-end digital devices can correct it by subtracting the reference samples of dark pictures. PRNU is mainly caused by the non-uniform pixel of the sensor, because the non-ideal manufacturing process leads to the non-uniformity of the sensor's photosensitive elements. the refraction of light on dust and optical surfaces and the photosensitive elements themselves are mainly concentrated in the high frequency band, some low frequency signals also have influence on PRNU noise. This paper mainly studies PNU noise in PRNU mode noise, which is called mode noise in this paper.

Mode noise is embedded in image information during image imaging, so if a set of videos captured by the same device, the PNU noise contained in the videos has the same characteristics (Su Y.T., Zhang J. Han, &Y. Chen J, 2010). Thus, this paper uses this mode noise to carry out passive forensics research.

Sensor imaging principle and mathematical model

First of all, it is assumed that the original images that were not processed by the image sensor of the device during the shooting process of the device are x_{ij} - $i = 1,\ldots,m$- $j = 1,\ldots,n$- (i, j), which are the pixel point coordinates of the image (the same below). Secondly, the mode

noise (PNU) processed by the image sensor is η_{ij}, and it is known from the above that it is additive to the original image x_{ij}, but its essence is a multiplicative noise, so its multiplicative coefficient can be set to f_{ij}. FPN noise caused by dark current is c_{ij}, while all random noise can be defined as ε_{ij}. Assuming that the final output image after passing through the device is y_{ij}, its mathematical output formula is:

$$y_{ij} = f_{ij}(x_{ij} + \eta_{ij}) + c_{ij} + \varepsilon_{ij}$$

However, in reality, f_{ij} is very close to 1, so even though η_{ij} is a multiplicative noise, it can still be regarded as additive noise when acquiring PNU noise. The obtain image signal y_{ij} is that stored image finally obtain through a series of complicated processing mechanism, including color check, filter processing, and so on. Therefore, the value p_{ij} of each pixel of the output image after the processing mechanism is within the range of $0 \le p_{ij} \le 255$, which is defined as:

$$p_{ij} = P\left(y_{ij}, N\left(y_{ij}\right), i, j\right)$$

Where, P is a non-linear pair y, the locked pixel coordinates (i, j), and processing the adjacent image value $N(y)$ of the locked pixel. In this way, the device obtains the value of each pixel point.

PATTERN NOISE EXTRACTION ALGORITHM FOR MONITORING VIDEO DATA

In order to better understand the characteristics of mode noise, we should first review the generation of mode noise, which is inevitable noise caused by uneven. All images will show a slight intensity gradient during the production process. Therefore, PNU noise is a high-frequency component. To remove these low-frequency component noises, a high-pass filter (cut-off frequency is about 150 / 1136) is needed to average the filtered image so as to reduce the random noise component while the mode noise component is accumulated. And with the values of f_{ij} described above, it can be seen that formula (3) can be simplified as follows:

$$y_{ij} = x_{ij} + \eta_{ij} + c_{ij} + \varepsilon_{ij}$$

In order to eliminate other noise components, the final desired mode noise η_{ij} is obtained. A feasible high-pass filter must be designed to eliminate other noise components. The filter used in this paper is an improved filter algorithm. The establishment of this image filter can be divided into two steps. first, the local variance of the image is estimated, and then the local wiener filter is used to obtain the image estimation after denoising in the wavelet domain. The specific implementation steps are as follows:

1. The noisy image is decomposed into four-level components by using 8-tap Dabubechies wavelet transform. In which its high frequency component is defined as the base component and the other three are vertical, horizontal and diagonal components respectively (v(i, j)- h(i, j) - d (i, j)).

2. In each subband, the local variance of the original noiseless image is estimated, and each wavelet coefficient is estimated using the neighborhood map of square $W \times W$ of 4 sizes, W- {3,5,7,9. The neighborhood N is shown in figure 3, figure 4, figure 5, and figure 6.

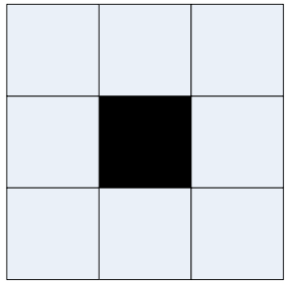


Figure 3. 3×3block of pixels neighborhood graph

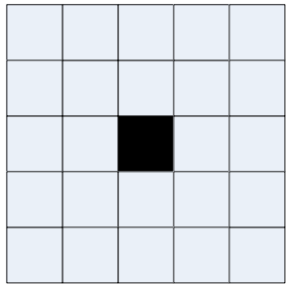


Figure 4. 5×5 block of pixels neighborhood graph

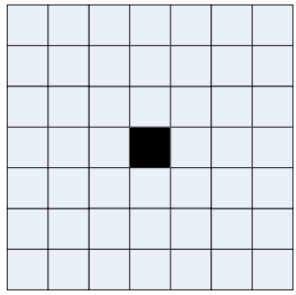


Figure 5. 7×7 block of pixels neighborhood graph

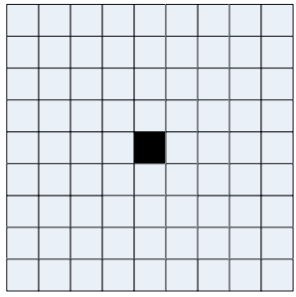


Figure 6. 9×9 block of pixels neighborhood graph

Subset J is the neighborhood of the corresponding pixel neighborhood graph, as shown in figure 3, figure 4, figure 5, and figure 6, the black mark is the calculated pixel point, while the other part is its neighborhood, that is, the value range of subset J:

For example, in figure 3, if the coordinates of the black pixel point are (i, j), then the coordinates are $(i-1, j-1)$, $i-1, j)$- $(i-1, j+1)$- $(i, j-1)$- $(i, j+1)$- $(i+1, j-1)$- $(i+1, j)$- $(i+1, j+1)$, are the neighborhood coordinates of the pixel point. From this we can also know that its neighboring points are W^2-1 points, so its neighboring points are 8, 24, 48, 80 respectively. Then the formula for calculating the variance is as follows:

$$\hat{\sigma}_w^{\,2}(i,j) = \max\left(0, \frac{1}{W^2}\sum_{(i,j)\in J} h^2(i,j) - \sigma_0^2\right)$$

The minimum value of these four values is taken as the required wavelet coefficients $\sigma^2(i, j)$. Then use that obtained wavelet coefficient to filter each sub band according to the wiener filtering scheme:

$$\hat{\sigma}^{\,2}(i,j) = \min(\sigma_3^2(i,j), \sigma_5^2(i,j), \sigma_7^2(i,j), \sigma_9^2(i,j))$$

(3) Then using the denoised wavelet coefficients to carry out wiener filtering processing:

$$h_{den}(i,j) = h(i,j)\frac{\hat{\sigma}^{\,2}(i,j)}{\hat{\sigma}^{\,2}(i,j) + \hat{\sigma}_0}$$

At the same time, the horizontal component $v(i, j)$ and diagonal component $d(i, j)$ are subjected to wiener filtering processing. After wiener filtering is performed on the three sub - bands, the filtered three sub-bands and the base band are reconstructed to obtain the denoised image x_{ij}.

(4) Repeating the above three steps to denoise K noisy images.

The description of the denoising filter has been completed. now, the value of parameter σ_0 will be briefly discussed. Using different σ_0 - {1,…,6}, calculate 180 images obtained from the same device, and then based on these images and noise residuals calculate the correlation of 180 images of σ_0 shows that the variation of multiple correlation values of 0 is relatively flat, so it can be known that different values of σ_0 have little influence on the correlation, you can choose values at will.

COMPARISON METHOD FOR PATTERN NOISE AMONG MONITORING VIDEO FRAMES

According to the analysis in sections 3, in order to extract mode noise, the first step is to denoise the video to be detected. The specific block diagram is shown in figure 7.

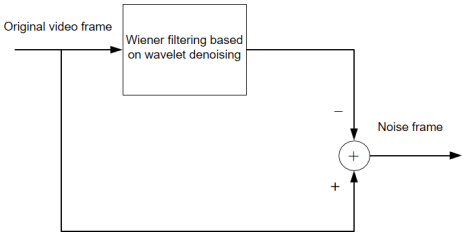


Figure 7. Video frame denoising diagram

Then, the original video frame and the corresponding denoised video frame make a difference, thus obtaining the noise of each video frame. Expressed as:

$$n_k = y_k - f(y_k)$$

The noise n_k of each frame of the original video is obtained in the above calculation. According to the point of view stated in this article, the statistical characteristics of the un-tampered original video frame noise are basically the same, while the tampered video noise will be inconsistent with this statistical characteristic.

A static background tampering detection algorithm of pattern noise consistency

The basic idea of the detection algorithm for removing tampering of video objects in still background is to analyze the residual mode noise of moving objects in video, then calculate the mean value of the moving objects to establish a reference model, and at the same time calculate the correlation coefficient. Areas with correlation coefficients lower than normal values are used as criteria for detecting whether the video has been tampered with.

The process of still background video tampering: first, the video to be detected is divided into frames, and each frame of video image is extracted. then, each frame of image is filtered by wiener filter based on wavelet transform, and the difference between the original video frame and the denoised video frame is calculated to obtain the noisy image of each frame. next, the noisy image of each frame is divided into blocks, and the mode noise of the corresponding block of each frame is averaged, which is used as the mode noise reference model of the block. Calculating a correlation coefficient value of a frame to be detected and a reference model corresponding block of the mode noise, comparing the calculated correlation coefficient value with a threshold value, if the correlation coefficient value is greater than the threshold value, determining a normal region of the bit, and if the correlation coefficient value is less than or equal to the threshold value, determining a tampered region. Finally, the preliminary detection result is processed by mathematical morphology operation, and the tampered area is located in the original video frame.

The basic idea of the tamper detection algorithm for video object removal under moving background is to judge the region with far correlation coefficient of the mean value as the tampered region by analyzing the statistical characteristics of the mean value and variance of the block corresponding to the mode noise of adjacent frames in the video.

Moving background video tampering detection algorithm: first, two adjacent video images are also extracted, then through wiener filtering processing based on wavelet transform, the two frames and the original video two frames are subjected to difference value calculation to obtain a pattern noise map, then the pattern noise map is subjected to block processing. The background offset is calculated by using a block matching algorithm, and the correspond-

ing block between the detected frame and the reference frame is found. At the same time, the correlation coefficient is calculated, if the correlation coefficient value is greater than the threshold value, then the normal region of the bit is judged, and if less than or equal to the threshold value, the region is judged to be tampered. Finally, the preliminary detection result is processed by mathematical morphology operation, and the tampered area is located in the original video frame.

In a campus surveillance video, a car was monitored, and now it was tampered with. the car was erased from the video, and then analyzed to obtain the above correlation value distribution map. It can be clearly seen from the comparison of the statistical characteristics of the graph that the correlation values of the original video sequence are concentrated in the correlation values are relatively high in most of the partitioned areas. very few will be distributed in lower areas. However, in the correlation value graph of the tampered video sequence, some segmented regions have already left below the constant correlation value line, and even some of the regions have correlation coefficients close to zero. Therefore, the tampered area is the area where the correlation value is not high. As shown in figure 8, According to the correlation value less than 0.2, the block area is the car deletion part in video monitoring, which is confirmed by experimental simulation.

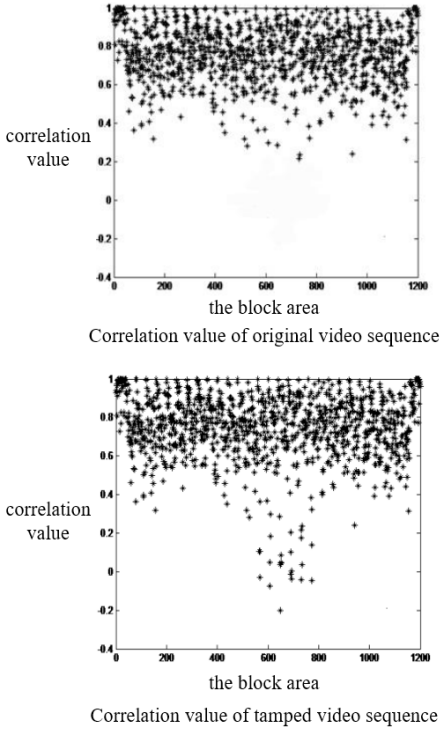


Figure 8 Correlation value of block area

CONCLUSIONS

Passive forensics of digital video is a very open and hot research field nowadays, there are many kinds of video tampering methods, scholars have studied different types of tampering methods and put forward various corresponding detection schemes. In this paper, we analyze and study the types of tampering of moving objects or characters in video sequences, and a detection algorithm is proposed to extract the noise from the sensor's legacy mode and distinguish the tampering of video.

Through the above discussion, it can be concluded that the tamper detection algorithm proposed in this paper can effectively detect the tampering of moving objects or people in video frames. In general, the algorithm can not only judge whether there is tampering with the video, but also locate the specific location where the video was tampered with or detect the whole trace of the object in the frame-by-frame tampered video.

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MOVEMENT ANALYSIS IN FORENSICS – AN INTERDISCIPLINARY APPROACH

Sandra Adiarte
Department of Human Sciences, Otto-Friedrich-University, Bamberg, Germany
s.adiarte@gmx.de

Abstract: The purpose of current research projects is to create a suitable framework for introducing applicability of movement analysis into general forensic and criminological practice. A comprehensive overarching theoretical and research based framework is still missing. Attempts to identify masked individuals, recognition of specific individuals in crowds, deception detection and risk assessment at control points are first steps towards video-based and computed assessment using movement analysis. Several studies show promising results. But how does this all apply to the daily practice of tactical and law enforcement personnel in the field? What implications does this field have on criminological and forensic research and practice and how could it influence training methodology? This paper discusses the challenges and implications of related basic research in Germany. An interdisciplinary approach using Laban Movement Analysis (LMA) and Laban/Bartenieff Movement Studies (LBMS) is introduced and discussed in relation to actual research outcome. Questions around efficient training of observation skills in relevant profession related scenarios are addressed.

Keywords: Forensics, criminology, Laban/Bartenieff Movement Studies, Movement Analysis

INTRODUCTION

This paper aims to bring attention to an actual dilemma related to general forensic research practice which revolves around assessing movements of individuals in relation to crime. It seems that momentarily, a lot of scientific research projects and resources are being focussed on developing computer systems for valid and reliable data analysis, to enhance forensic practice.

We identify two major issues:

1. There is no (national / international) consensus about the basic theoretical frameworks, when defining the parameters for identifying features of individuals in motion. This undermines the established practice in the field and compromises future research, related to the reliability and credibility in general forensic research and practice.

2. Final decisions in relation to forensic and relevant criminal investigations, even the ones based on digitalized data, are made by the officials of law enforcement, who monitor and analyze the data. They are deciding about the following steps for enforcing the law. However, there is no overarching methodology of how to structure observation, evaluation and analysis in forensics; Neither for data based analysis nor for real time observations.

It is our aim to outline the actual status of research in relation to movement analysis and to show why it is relevant in forensic research. We demonstrate approaches and methodology used in Germany and Switzerland and introduce the attempt of employing an interdisciplinary approach, using Laban/Bartenieff Movement Studies (LBMS) and Laban Movement Analysis (LMA) as methodology in forensic research. Our suggestions and recommendations conclude in the proposition that the actual state of art is risky and can cause a dramatic effect on the outside effective of forensic science alongside with problematic legal implications.

MOVEMENT ANALYSIS

The term >movement analysis< has not been used in the field of forensics since the 1970s. Among others, designations like body language and nonverbal behavior have replaced this term. Various scientific areas with interest in this research field and contemporary needs in relation to crime prevention and investigation, have developed a vast field of research. However, this field still has difficulties decoding individual features of a body in motion in relation to crime. Both computer-based and classical observation methodologies have only started to find suitable solutions. Current results of this research, supports the reliability in such approaches in recent years.

FORENSICS

Assessing peculiarities of abnormal movement which might suggest forthcoming criminal actions need a structured mode of analysis to determine and predict further actions (Bättig, Frey & Hofer, 2011, Adiarte, 2016). Thorough analysis, precise profiling and objective investigation will guide hypotheses during criminal investigation and support law enforcement strategically (Canter & Youngs, 2009). Observations for risk assessment during patrolling and police operations, at checkpoints and borders, interviewing and other investigative actions is an essential part of investigating practice (Jain & Ross, 2015). When assessing in real life and researching in the field, underestimating interfering impacts on offenders behaviors can be dangerous (Grant & Williams, 2011).

COMPUTER SYSTEMS

Face and fingerprint recognition and DNA matching are just some of the systems specially developed for the purpose of individualization of people at borders and other check points. These are dependable computed tools based on biometrics. Highly sophisticated and efficient computer systems have become a vital part in scientific research as well as in investigative practice (Pfefferli, 2018). Specified systems inform theory and practice. They operate as an authoritative tool, finding and documenting evidence related to criminal investigation and support areas of criminal investigation and law enforcement (Jain, Klare &Ross, 2015), providing reliable and curable data. But when it comes to individualizing a disguised suspect, assessing risk or detecting deceit, where unerring evaluation of real time observation is of interest, computer systems have not yet provided efficient solutions. Other methods are needed.

EXPERIMENTS VS RESEARCH IN THE FIELD

Characterizing the parameters for observation which would justify judgements - and stepping into action to prevent criminal actions or to investigations enforcing the law- are being carved out under controlled experimental settings (Heubrock, Kindermann, Palkies & Röhrs, 2009; Heubrock, Immerini, Mengeringhausen & Palkies, 2009). The classic dilemma discussion experimental versus field research remains.

Computed approaches, like in gait analysis, can be successfully applied to identify disguised offenders and seem to find more and more supporting officials in the field (Larsen, Simonsen& Lynnerup, 2008). However, these cues of suspicious movement behavior may occur in specific settings and situations, but only under controlled conditions (Koller, Wetter & Hofer, 2015). This outcome can not always be translated to the field because crimes being planed and executed under real life conditions are much more complex. Furthermore, legal implications limit the scope and chances for researchers to do and present research done in the field.

As for other research areas, forensic sciences also get drawn to the intriguing options of the temporary fashion using the possibilities of digitalized systems, because they provide reliable data. Jain & Ross (2015) draw a very dark picture of the current state of forensic science and pinpoint the differences in the approaches of forensic sciences and biometrics. Although these two fields are drawn towards each other, uniting them in the attempt to link biological data to an individual, the handling and evaluation as well as the accuracy in research methodology is arguable.

Computed and traditional approaches, however, share the goal of individualizing individuals or parts of behavioral traits which support efficient and successful criminal investigation as well as law enforcement. When it comes to defining this fundamental research field and using research outcome in applications and law enforcement practice, however, there is no local nor international consensus in theoretical framework, definition of parameters and quality management (Pfefferli, 2018).

READING A DECEPTIVE BODY - MATCH AND MISMATCH OF BEHAVIOR

In various fields of our social and professional lives, assessing false and truthful information is facilitating professional and personal success. Efficient medical and psychological assessment and analysis of the body and mind need to be based on reliable and validated standardized systems which provide comprehensive and comprehensible results. Even detailed expert analysis using complex methodology or technology needs to be transmittable to other officials and professionals of related fields (investigators, lawyers, judges) in order, to communicate meaningful data to others.

This is of interest during criminal interviewing, in communication in between officials and teams, as well as during trials. Evidence-based investigation and the ability to define and communicate observations and impressions to others is a key element of creating grounds for further investigation. In a clinical, investigative and preventative context, correct assessment over betrayal and truth is crucial. Wrong assessment may imply legal consequences.

Although there seems to be not much difference in the performance of laymen and professionals when detecting deception (Vrij, 1993, Adiarte, 2016) training the ability seems possible (Heubrock, Kindermann, Palkies & Röhrs, 2009; DePaolo et al., 2003; Mann, Vrij & Bull,

2004). Strategies and specifics of interrogation and interviewing technique can support the ability to distinguish liars and truth tellers (Vrij et al., 2018) and bring consistency and higher accuracy in truth and lie detection, when using the cognitive lie detection approach (Vrij, Fisher & Blank, 2015). Consistent training and standardized interviewing helps investigators to structure and document investigations (Habschik, 2012) and elaborate use of evidence disclosure can support investigative interviewing (Tekin, Granhag, Strömwall & Vrij, 2016). Deceivers appear to act and talk differently when lying (DePaolo et al., 2003), which is also visible in their movement (Adiarte, 2016) and further research will continue and strive to elucidate this field. It would be remarkable to be able to identify individuals via observation, discovering match and mismatch in behavior and having the ability applying this knowledge in order to predict, prevent or illuminate possible criminal action.

GERMAN RESEARCH

The German researcher Heubrock and his colleagues (2009) could show that there was a specific difference in the movement behavior of people who were about to commit a specific crime under controlled experimental conditions (Heubrock, Immerini, Mengeringhausen & Palkies, 2009). They were also able to identify masked individuals via computer based gait analysis (Heubrock, 2007, Heubrock, Dorn, Rodiek & Stadler, 2007). These attempts are a first step towards introducing structured movement analysis to the field of forensic science.

Hermanutz and other German researchers have investigated the components of the operational competence in relation of law enforcement personnel, which led to practical guidelines in relation to work related stress management and communication. This led to the developed of guidelines for structured interviewing of adults and children (Hermanutz & Schröder, 2015; Hermanutz, Hahn & Jordan, 2015, Adler & Hermanutz, 2013). They evaluated the actual state of the image of the police in the eye of the public and profession related quality management (Hermanutz & Weigle, 2017) and increasing assaults against authorities (Hermanutz, 2015; Hermanutz, 2013). Research in relation to credibility during police interviews and general police and law enforcement practice (Hermanutz & Watolla, 2012; Hermanutz, Litzcke, Hahn, & Werner, 2012; Wendler & Hoffmann, 2015) and the objectives of looking at verbal and nonverbal credibility assessment in interviews were elaborated further by Adiarte via introducing an interdisciplinary approach to this research field (Adiarte, 2016).

LABAN/BARTENIEFF MOVEMENT STUDIES (LBMS) & LABAN MOVEMENT ANALYSIS (LMA)

The overwhelming complexity of human movement and individual specifics of behavior, are difficult to categorize. LBMS/LMA achieves exactly this task. This observational approach pinpoints movements in parameters and notation and uses a holistic, embodied understanding of individuals in motion (Tschacher, Rees & Ramseyer 2014; Tschacher & Bergomi 2011). It is based on the theories and contributions of Rudolf v. Laban (1879-1958) and his followers, believing in the uniqueness of an individual, which can be specifically described by the way it moves and how it relates to its environment (Laban, 1982; Kennedy, 2010; Studd & Cox, 2013; Moore & Yamamoto, 1988). Trained experts in LBMS/LMA apply this sophisticated method of movement observation and analysis in research and practice. It is broadly used in health related physiological or psychological therapy (Van Dyck, Maes, Hargreaves, Lesaffre & Leman, 2013; Koch, 2011; Lausberg, 2011; Lausberg, 2009) and management train-

ing (Ramsden, 1992; Davis, 2007). It has been applied in research about nonverbal behavior (Davis, 1992), deception detection (Adiarte, 2016) and clinical assessment (Lausberg, 2011) and also for the optimization of computer systems where analysis of movement is of interest. LBMS/LMA supports the development of specialized technologies in robotics (Burton, Samadani, Gorbet, & Kulić, 2015; Lockyer, Bartram, Schiphorst, Studd, 2015), animated computer games (Koštomaj& Boh, 2009) and the development of parameters for computer based analysis of movement (Bernstein, Shafir, Tsachor, Studd, & Schuster, 2015; Calvert, 2015; Lockyer, Bartram,Schiphorst& Studd, 2015). This highly sophisticated method is used by therapists, scientists and practitioners worldwide to observe, analyze and evaluate movements of individuals in specific contexts. It enables macro and micro analysis of movement, describing it on the base of its main categories: Body, Effort, Shape, Space, Relationship and Phrasing.

ACTUALITY AND HOPE

With millions of people traveling across landmarks and borders, in between continents and countries, we obviously need to find solutions to partially use automated systems help to sort through these huge amount of live and digitalized material in order to provide security. The same applies for general law enforcement practice. We want to pinpoint two problems here: 1) the data is evaluated on the base of the given parameters, established by researchers specializing in computer systems and not on anthropology, social sciences or movement analysis and 2) the final interpretation of the outcome and results is not done by a computer, but by a person. The development of computer systems is advancing fast. A numbers of questions need to be asked: How are we, as deciders, keeping up with this pace? Are we to rely on a computer to make the final decision? Can the computer system validate reliably if: this is the guy we are looking for or this behavior is classified as suspicious? When exactly is it *right* to step into action for crime prevention? Who will be held responsible in case things go wrong? Identifying offenders or other individuals of interest will hopefully always remain in the hands / eye of the officer or agent looking at some sort of data, making the final decision.

Ad hoc evaluation of people and movement behavior in real time can be trained. It is likely that any trainedobserver will be a better observer, once he is trained methodologically. Cues of suspicious movement behavior, may occur in specific settings and situations but only under specific experimental conditions (Koller, Wetter & Hofer, 2015), concluding that any official obliged to observe, analyze and decide, needs to be one thing more than anything else: he needs to have a great deal of situational and general perceptive awareness related to his specific field of application. Which consequently leads to the following questions: is our personnel trained for this purpose, and if so, how? What is a suitable framework to structure methodology and practice of this kind of training?

Swiss law enforcement personnel and international personnel are trained by officials, like Franz Bättig (Cantonal Police, Zürich, Switzerland), in ASPECT $^{(R)}$ - Analyzing Suspicious Persons and Cognitive Training (Bättig, Frey & Hofer, 2011). German institutions include FACS - Facial Action Coding System (Ekman & Rosenberg, 1997). The framework of this essential training and its preservative quality management, however, are based neither on national nor international standards (Pfefferli, 2018).

SUGGESTION

We suggest contemplating and solving the spectrum of implied uncertainties in relation to introducing movement analysis to the field of forensic science and related necessities in quality management retracing the following chain of thoughts:

Standardization and validation will always be an issue in forensic research because there is no common - national nor international - consensus about quality management.

Investigative protocols (if existent) will always apply *after* the criminal incident and criminals engagement in an individual act of criminal action. Due to situational unpredictable premises, this is an immanent and perpetual issue of standardization.

Experimental forensic research under controlled conditions in relation to criminal actions and behavior can and will never reflect real life events. The outcome of related experiments cannot be compared to real life situations, because the field provides the *full* complexity of humans in motion, acting in an unpredictable environment.

There is a difference between observation training and training in movement analysis. Both involve the structured approach to observing movement, but the training in observation means developing a skill. Movement analysis, however, is a directed, specific use and precise approach towards a goal oriented observational task, which is done by a trained observer.

Specific, but understandable language and appropriate use of information and content in hectic momentous situations, or when testifying in the courtroom is a challenging part of communication. Trained communicative skills, or the lack of these, can be an element which enlivens and enriches the understanding in between communicators and it can influence and interfere with understanding dramatically. Transmitting expert knowledge to laymen in a field can fail dramatically.

observation is a conscious act based on embodied resonance-ability.

observation is an interactive and dynamic process, which can be done meticulously.

observation and perceptive skills can be trained.

WHAT WE SHOULD DO

understand and define movement based on the theories around perception and embodied cognition.

create a methodological and scientific framework that will enable defined and detailed communication in relation movement analysis, which suits the general state of art and necessities in the field of law enforcement evaluation strategies and ensure reliable qualitative excellence.

use LMBS/LMA to structure understanding, observing and analyzing human movement.

include structured observation and analysis as part of the general training of law enforcement personnel (not specialists only).

researchers should have the chance to evaluate data from former criminal investigations (analyzing data in retrospect is not always permitted due to legal obstructions) or even get access to data from actual investigations under assured circumstances, supported by the authorities to introduce new methodologies and evaluate them under real life conditions.

institutions should focus on the systematic training of law enforcement personnel and develop models to optimizeefficient training in profession related observation skills, self awareness and self defense.

CONCLUSION

Forensics using typical approaches for introducing movement analysis to forensic science will continue to fail due to contradictions in form and content, if we continued ignoring the fact, that consensus about theory, methodology, terminology and quality management is missing. Solid theoretical framework for this field and the appropriate use of the underlying implications, defined as the basis for this field of research, cannot be achieved without defining basic principles, asking the aggravating questions and discussing the aim of mutual consent.

Continuing on this path of imprecision is not an option. It would be a momentous mistake. We will not be able to stay up to date with the contemporary development of technologies and deal with the challenges of organized terror and tactics of criminal organizations, if we do not develop our own perceptive abilities for handling the data correctly.

Countries, states and organizations have to identify and explore the possibilities and limitations inflicted by the law to facilitate discourse and support interdisciplinary research which is practice based and practice oriented. Theories underlying the analysis of movement should take all the mentioned aspects under consideration. The ability of predicting behavior in the context of crime reliably, would have a great impact on the training and practice of law enforcement. LBMS/LMA have the methodology to pursue this critical endeavor and structure macro and micro analysis in the forensic context. Further research is needed to show how reliable findings are, once introduced and applied to the field.

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