3th INTERNATIONAL SCIENTIFIC - PROFESSIONAL CONFERENCE

SECURITY AND CRISIS MANAGEMENT - THEORY AND PRACTICE

SAFETY FOR THE FUTURE 2017
PROCEEDINGS

CERTAINTY
ORGANIZATION

PLANNING
SECURITY

CONTROL

RESILIENCE

high risk
VULNERABILITY

small risk

OBRENOVAC 2017
FOREWORD

Manifestation Safety for the Future came from the idea and the need to see security problems as a whole, and yet separately, through a prism of scientists and experts to bring science, company practice and economy together. This year we are celebrating this event for the third time.

In the modern world, security has become a top-notch. Security has a special significance in crisis situations. Crisis situations have become a constant of the modern world. Human society has become more vulnerable to various negative impacts than in the past. Accelerated technical and technological development opens new dimensions of phenomena, whose width and depth are not known at the time of the creation of new products. The risk of event manifestations with negative effects cannot be assessed at the outset, but the confrontation with negative consequences is due to their manifestation. Crisis management has become a daily necessity, necessary for the survival of an individual, company or society as a whole.

Scientific findings do not always come to those who perform security tasks, such as physical or legal persons. Therefore, there is a need for scientists and experts to meet and exchange ideas, opinions and knowledge. Materialization of knowledge is carried out daily in the process of modern business. Exposed to the impacts of a turbulent environment, and focused on sustainability, modern business requires permanent monitoring of changes and adaptation to these changes.

Knowledge of the environment in which the modern society is located, is possible if it possesses the necessary knowledge of the phenomena that characterize it. Only knowledge provides an opportunity, preventive action through an efficient risk assessment system. Knowledge, formed as a symbiosis of science and profession, has only quality and strength, which guarantees the possibility of preventive action and an optimal level of readiness to react to negative events. The resistance of contemporary society to negative events depends on the degree of knowledge development.

Proceedings from the 3rd International Conference - Security and Crisis Management - Theory and Practice, presents a new value in the observation of a portfolio of security phenomena at the strategic, company, and individual level. The papers published in the proceedings are new findings and views of the author. A wide range of issues, confirms the assumption of the necessity of such a conference. The papers presented at the last two conferences have unambiguously demonstrated the need for regional cooperation and the harmonization of joint capacities.

The exhibition part of the event and practical demonstration exercises aim to ensure that consumers of implemented safety show new achievements and opportunities in solving various security problems. The intention of the organizer is, by carefully selecting the theme for demonstration exercises, to trace the way of applying the principles of practicality and the obviousness in the process of training and training the person to respond in different situations.

We hope that this codex will be a source of new knowledge, assistance in solving security problems, a support for practitioners dealing with security, and a source of initiative to advance existing knowledge in the field of security and crisis management.

By this way, we invite all stakeholders to improve the quality of their future editions with their work.

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MANAGEMENT OF RISK IN PROCESS OF TRAINING OF SECURITY EMPLOYEES IN PISTOLS SHOOTING

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Summary: Semi-automatic pistols are widely used in the area of personnel and property protection by private security companies, and their size and shape give them advantage over larger and more powerful weapons. Private security employees handle pistols everyday as pistols represent their main tools for accomplishing tasks in the area of immediate and physical security. Injuries and material damage caused by using pistols are a common occurrence and therefore safe pistols handling is an essential task that has no alternative. In order to reduce risk and probable outcomes, it is necessary to conduct training process which is the right and an obligation of everyone who handles pistols. The use of pistols without proper training is unsafe and it puts at risk the safety of personnel and property. In this paper, we show errors when conducting precise shooting whose correction increases accuracy and precision, and range operations, as the highest level of weapons training, are conducted with minimal risk.

Keywords: security, risk, range operations, errors, precision

1. INTRODUCTION

Risk management is an activity that increases the likelihood of project realization within the limits of the defined time, permissible costs and given performance. It is a continuous decision-making process that gradually reduces uncertainties according to the set goal and in accordance with the achievement of the desired results [1].

In the training process, risk management is the primary part for identifying hazards and risk control when engaging people in the realization of the content defined by the approved plan and training program.

Private security represents direct security and protection, both persons and their trusted assets. They include the engagement of security officers as legal persons, and the engagement of individuals in the process of self-protection in various organizations, through the function of personal security, guard services and the like [2].

Security and protection of persons and property is realized in different ways. One of the ways is by using a pistol as a firearm, and by officers engaged in the activity of private security. In the area of protection of persons and property in private security activities, the pistols are widely used and represent the basic tool for performing the tasks of security officers.

The use of pistols as firearms in the performance of private security personnel is a risky process and depends on a large number of factors determining it: the level of training, work experience, the type of facility being provided, the state of the environment and the environment, the quality of the weapons, the intentions and aggressiveness of the
attacker, the conditions of the execution of the attack, the psychological state of the security officers, and the like. Taking into account the influence of these factors, a private security officer in a real situation with a pistol can react correctly or incorrectly, which depends on the assessment of the current vulnerability by the engaged person and the level of his training.

Proper use of a pistol implies a reaction by private security officers, which results in the least damage and a positive effect. Any reflex response of private security officers without risk assessment is incorrect and leads to a lack of use of pistols and negative effects.

In order to properly react and perform tasks with minimal damage and maximum positive effect, qualitative training of private security officers is necessary, with the aim of achieving the level of precise and precise shooting by pistols. In order to eliminate the risk of occurrence of unwanted events, in the course of training with guns, in the course of the training, eliminate or minimize the degree, it is necessary to introduce persons who are training with errors in the execution of guns with precision fire, as well as the methods of their removal.

By improving the elimination of errors in shooting guns with precision firing, greater accuracy and precision is achieved, which reduces the risk of negative occurrences and increases the likelihood of achieving positive effects when using a gun in the real situation of protection of persons and property by private security officers.

2. KNOWLEDGE AND SAFE HANDLING OF PISTOLS IN THE FUNCTION OF RISK REDUCTION

Training and skills for safe handling is the right and the duty of all persons who handle or come into contact with the pistols. Safe handling is not only about the process of shooting but also with all situations in which the pistols are used. Only the use of a pistol without proper training is an unsafe action and endangers the safety of people and property.

Training for safe handling of pistols an only be carried out by professionals who are top trained in handling and methodologically trained for transtheoretical practical knowledge.

Knowledge and safe handling of pistols is the content of the initial part of the training program for security officers and it is mandatory prior before firing. It represents the theoretical practical part of the training in which the security officer meets the gun, as a fire extinguisher, proper and safe handling of the same and ammunition that is used in accordance with the type of gun and the set goal and tasks. During the process of this part of the training there are many mistakes that increase the possibility of occurrence of unwanted events and directly influence the increase in risk during the realization of the shooting and later in performing the tasks.

Errors in this part of the training that increase the risk of occurrence of unwanted events are: incorrectly checking the discharge / filling of the gun, improper and violent disassembly and assembly, replacement of parts of various pistols, improper removal of deadlock, not adequate use of the appropriate type of ammunition and non observance of the shooting rules (preparation for shooting, firing, firing, retaliation, firing).

These errors lead to damage to the pistol, incorrect operation of the pistol, injuries and killing of people, damage to property and affect the safe and quality execution of the assigned task as a whole.
By successfully mastering this theoretical and practical part, the people become trained in the execution of firing at the firing range, which is one of the basic measures for preventing unwanted events during firing. The knowledge of the pistol is the acquisition of knowledge of: the purposes and fire qualities, the tactical-technical characteristics, the parts and the principle of the operation of the pistol, and the type of ammunition used for shooting with pistols. By handling people practically acquire skills in disassembling, assembling, properly wearing and cleaning the gun.

Findings about the purpose and basic characteristics allow a private security officer to use the gun correctly when performing defined defects in the real situation. Proper use of the pistol achieves a higher probability of hitting and produces a better effect on the target being targeted. In addition, the use of a gun in accordance with their purpose and characteristics reduces the possibility of occurrence of deadlock, increases the safety of handling, and the risk of unwanted events is minimized.

The pistol is a personal, semi-automatic firearm whose weight and constructive features allow all actions to open fire (capture, shoot, and fire) are normally performed with one hand. It is designed for live action in the distance of up to 50 m, and the most effective action with a gun is achieved at distances up to 30 m. The following models of pistols are most commonly used in the Republic of Serbia: M57-caliber 7.62 mm, M70-caliber 7.65 mm, and CZ 99-caliber 9 mm (Figure 1.).

These pistols are considered semi-automatic weaponry, which points to the fact that by pressing the trigger, the continuous operation of the automation is not ensured until the trigger or the disappearance of the bullets in the frame is released, but only one cycle of automatic operation is realized. The running cycle of shooting the bullet from the pistol remains unchanged, but the start-up cycle of the next bullets does not start automatically, but by releasing and re-pushing the shot by the targeted person. An overview of the basic characteristics of the gun is shown in Table 1.
Table 1: Overview of characteristics of pistols of semi-automatic pistols in the Republic of Serbia

<table>
<thead>
<tr>
<th>CHARACTERISTICS OF PISTOLS</th>
<th>MODEL OF PISTOL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M57</td>
</tr>
<tr>
<td>PIPE</td>
<td></td>
</tr>
<tr>
<td>caliber (mm)</td>
<td>7.62</td>
</tr>
<tr>
<td>length (mm)</td>
<td>116</td>
</tr>
<tr>
<td>number of grooves</td>
<td>4</td>
</tr>
<tr>
<td>twisting grooves</td>
<td>from the left to the right</td>
</tr>
<tr>
<td>length (mm)</td>
<td>200</td>
</tr>
<tr>
<td>height (mm)</td>
<td>130</td>
</tr>
<tr>
<td>thickness (mm)</td>
<td>-</td>
</tr>
<tr>
<td>without frame (g)</td>
<td>780</td>
</tr>
<tr>
<td>with empty frame (g)</td>
<td>880</td>
</tr>
<tr>
<td>with a full frame (g)</td>
<td>980</td>
</tr>
<tr>
<td>FRAME CAPACITY (number of bullets)</td>
<td>9</td>
</tr>
<tr>
<td>AMMUNITION</td>
<td></td>
</tr>
<tr>
<td>weight of bullet (g)</td>
<td>10.2-</td>
</tr>
<tr>
<td>weight of grain (g)</td>
<td>-</td>
</tr>
<tr>
<td>final grain range (m)</td>
<td>1650</td>
</tr>
<tr>
<td>initial grain speed (m/s)</td>
<td>455</td>
</tr>
<tr>
<td>PRACTICAL SPEED OF SHOOTING (bullets/min.)</td>
<td>30-40</td>
</tr>
<tr>
<td>LENGTH OF SIGHTING LINES (mm)</td>
<td>158</td>
</tr>
</tbody>
</table>

Main parts shown in Table 2 are the basic (essential) elements of the pistol. They are interconnected and their construction ensures the functionality of the pistol and revolver when firing the bullet (Figure 2). The main parts are characterized by special features and consist of a series of smaller elements that enable them to work in accordance with their purpose.

Table 2: Overview of the main parts of the pistol

<table>
<thead>
<tr>
<th>NAME OF MAIN PARTS</th>
<th>SERIAL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>PISTOL</td>
<td>M57</td>
</tr>
<tr>
<td>pipe</td>
<td></td>
</tr>
<tr>
<td>cover with zipper and gunpoints</td>
<td></td>
</tr>
<tr>
<td>leading casings</td>
<td>-</td>
</tr>
<tr>
<td>reverse mechanism</td>
<td></td>
</tr>
<tr>
<td>handrail</td>
<td></td>
</tr>
<tr>
<td>trigger mechanism</td>
<td></td>
</tr>
<tr>
<td>a locking and shutter mechanism</td>
<td></td>
</tr>
<tr>
<td>clip</td>
<td></td>
</tr>
<tr>
<td>equipment</td>
<td></td>
</tr>
</tbody>
</table>
Ammunition is a type of killer and is a material substance with hard explosive matter. Using the ammunition, the execution function of the pistol is achieved, according to their purpose. Ammunition used by pistols (Table 3) is considered as a group of shooting ammunition. Practically, this is a bullet (Figure 3), which is defined as a means of fire-fighting, with the aim of achieving the ultimate effects on the target: destruction, damage, disabling and intimidation [3].

![Figure 2. Main parts of semi-automatic pistols in the Republic of Serbia](image)

**Table 3. Pistol ammunition**

<table>
<thead>
<tr>
<th>TYPE OF PISTOL</th>
<th>M57</th>
<th>M70</th>
<th>ЦЗ 99</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULLET</td>
<td>7.62 X 25 mm with ordinary grain</td>
<td>7.65 X 17 SR mm with ordinary grain M77</td>
<td>9 mm with ordinary grain M02</td>
</tr>
</tbody>
</table>
3. THE NOTION, PURPOSE AND TYPES OF PISTOLS SHOOTINGS

Pistol shooting is the process of organizing, preparing, and firing a certain number of missiles at the target. The aim of the shooting is to solve the problem of the missile meeting and the chosen target, thus achieving the action by the target being targeted.

In order to achieve the goal of shooting with guns and revolvers, it is necessary training in: proper and safe handling; accurate, precise and fast-acting for different purposes; the correct exercise of the choice and the way of targeting different objectives and the economical use of available ammunition.

From the point of view of training, shooting is the final stage of training in self-handling and use of a gun and it is realized after the passage of contents from the field: "Knowledge, handling, keeping and maintenance" and "Shooting rules" [2].

The shooting of pistols is preceded by exercises that constitute an organizational form of training where the private security officer is trained and trained in the execution of set up fire tasks. They are intended for individuals who are not trained, and they are realized through approved programs in appropriate shooting ranges and with adequate shooting equipment.

Pistol shooting is accompanied by a large number of difficulties, which significantly affect the accuracy and precision of the shooting, and consequently to achieve the desired results. Stability of the body, movement of the arms with arms and adjustment of the target and shooting are just some of the difficulties with which the shooter encounters shooting guns.

These difficulties are eliminated during training in practicing a suitable shooting position, breathing, shooting and firing technique, and through precision and quick firing.

Shoots with precision fire by guns are part of the training program and are a firing shot that is realized in order to train in proper and precise shooting. They are realized by the gun-instructor in accordance with the rules and conditions of shooting. On conditional shooting, shooters are familiar with the shooting rules and the shooting mistakes, especially during the firing phase - when sighting and shooting.
Hitting fire with guns is a discipline that is characterized by speed and dynamics, thus achieving a fast paced shot. It is also realized at verified (approved) shooting ranges, in accordance with the rules and projections of the approved shooting program. Realizing the firing by firefighters, shooting executors are trained in the quick merging of all shooting guns necessary for fire action against targets that appear suddenly and currently in a short time interval.

During shooting in precision and fast fire, respecting the specificities of shooting with guns, the shooting instructor: points to the mistakes of the shooter, affects the correction of the observed errors, analyzes the achieved results of each shooter, and concludes the further improvement of the shooter—security officer.

4. SPECIFICATIONS OF PISTOLS SHOOTINGS

The principal differences in gun shooting, in relation to the firing of other weapons, are particularly pronounced in the capture of shooting position both in sighting and shooting [4].

When shooter take a shooting position with guns, the following specificities are noted:

- the impossibility of any reliance;
- the gun is pointing towards the target in a freely extended hand;
- hold the gun with the same hand and pull the tail catcher;
- a lot of muscle strain in the fixed holding of the weight of a pointed gun in a spring-loaded hand;
- the existence of a swinging (swinging, shifting) hand with a pistol, caused by the inability of action and contradiction to ensure the immovability of the system that makes up arms with spray guns;
- the shooter's body is tilted to the side, and the shooting attitude is asymmetrical;
- the stability of the shooting position is conditioned by: the position of the foot, the position of the right / (left) side (set to the target), the size of the supporting surface of the body, the arrangement of the general center of the center of gravity of the body of the shooter over the support surface, and the shift of the shooter backwards from the level of shooting;
- properly holding the handgun of the gun with the right hand hand has a great importance on the accuracy and precision of shooting;
- the necessity of checking the proper holding of the handgun of the pistol (mainly in relation to the position and operation of the index finger and the degree of tightness of the handcuffs) immediately before the very beginning of the shooting
- the left hand is free, it is lowered downwards by putting a hand in a pocket or attached to the belt for the belt, in order to relax the muscles of the left part of the breast and shoulder joint, and
- the head is facing to the right, without a downward inclination or backward.

Handling arms with weapons is a basic feature of shooting and shooting triggering with guns, and has a great impact on achieving an accurate shot.

During the sighting, and because of the movement of the arm, the organ of vision appears in the role of a corrector that signals the turning of the hand into one or the other side. This is followed by impulses on the corresponding parts of the central nervous system towards the muscle groups, correcting the position of the arm with the weapon in relation to the target.
When firing, there will also be smaller or larger movements of the pistol. These movements primarily relate to the movement of the hand from the immobile state and result in the pulling of the trigger with the index finger of the same hand, with which the shooter holds the arms and the muscles of the finger folding muscles.

Pistol shooting is accompanied by a large number of difficulties, which significantly affect the accuracy and precision of the shooting, and consequently to achieve the desired results. Stability of the body, movement of arms with weapons and adjustment of the target and shooting are the difficulties with which the shooter constantly encounters shooting with guns.

The aforementioned difficulties are eliminated during the training of security officers in practicing a suitable shooting, breathing, shooting and firing technique, and through precision and quick firing.

5. ERRORS OF SIGHTING AND SHOOTING DURING THE PISTOLS SHOOTINGS

Execution of firing is a shooting phase by which the shooter-security officer creates a target action. The execution of the shooting starts with the opening of a fire from a pistol, by command (during training) or independently (in the real situation of performing defined tasks). The opening of the fire includes: the shooting and firing.

Pushing is a process by which the shooter, coordinated by the actions of the organs of vision and movement, brings the eye, the gunpoint (the last and the front) and the target point to the target into the line. This gives the pistol the appropriate direction in relation to the target. The indicated line is called the line of sight (Figure 4).

![Figure 4. A line of sighting, a gunpoint line, a goal center and a gunpoint](image)

Punching is a complex process because the shooter is effectively coordinating visual and movable actions. In doing this, it is always careful not to disturb the mutual relation of the sighting devices (handling of the fly) and the target, while at the same time taking care of their movements by which the gun is moved, by adjusting the direction of the weapon against the target (target). There are two ways of sighting: monocular (with one open eye) and binocular (with both open eyes). Most shotguns are monocular. However,
the binocular way of dashing has a number of advantages and they are reflected in the following:
- in the binocular way of targeting, the strain is less, because there is no need to look at it, which is very important in long-range firing;
- binocular visual acuity is stronger than monocular, as the impulses that come from both eyes cause more excitement of the corresponding parts of the central nervous system;
- in the binocular way of targeting, the fatigue of the cells of the main brain is weaker because they work under natural conditions;
- all the disadvantages that occur in the monocular way of targeting are eliminated: the stresses associated with the frustrations, especially in the beginner; strain and pressure of the eye's eye that is viscous on the apple of the eye, caused by an enlargement of one eye and an inevitable extension of the pupil of the open eye compared to the eye that is covered or rumbled.

It is desirable to target the binocular mode for the reasons given for shooting. In other words, eye which the sight do not overlap or frown upon it, they eliminate it psychologically.

The basic errors that a shooter makes when sighting with a gun are shown in Table 4.

Table 4. Errors during the shooting

<table>
<thead>
<tr>
<th>Ser.nmb</th>
<th>TYPE OF ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A high fly or a low fly</td>
</tr>
<tr>
<td>2</td>
<td>A fly leaning to the left or to the right</td>
</tr>
<tr>
<td>3</td>
<td>Combined errors</td>
</tr>
<tr>
<td>4</td>
<td>A diversionary sighting</td>
</tr>
<tr>
<td>5</td>
<td>Rounded weapons to the right or to the left</td>
</tr>
<tr>
<td>6</td>
<td>Eye concentration</td>
</tr>
<tr>
<td>7</td>
<td>A wide-ranging interstice</td>
</tr>
<tr>
<td>8</td>
<td>An improper procedure for handling a fly when aiming at the target</td>
</tr>
<tr>
<td>9</td>
<td>Temporary termination of the process of targeting</td>
</tr>
<tr>
<td>10</td>
<td>Incorrect head position</td>
</tr>
<tr>
<td>11</td>
<td>Permeation</td>
</tr>
<tr>
<td>12</td>
<td>Blinking at the hit</td>
</tr>
<tr>
<td>13</td>
<td>Delayed sighting</td>
</tr>
</tbody>
</table>

By correcting the displayed errors during the training, a proper target is achieved by the security officers, which is a prerequisite for switching to the trigger and achieving the desired result. Shooting is a process by which the shooter by firing the tail of the trigger fires the bullet. Bearing in mind the great and decisive importance of the trigger to achieve the right shot, it is necessary to adhere to the following:
- The trigger should not disturb the position of the gun indicated on the target, that is, it must not break the behavior;
- The trigger is performed during the respiratory break and in complete accordance with the target;
- Press the tail equally and
- Align equally with the tail of the trigger with the process of targeting.
The basic mistakes made by the shooter during the withdrawal of the trigger and the manner of their removal are shown in Table 5.

In addition to the aforementioned mistakes, the security officer can also make a number of other errors related to achieving the success of shooting with guns. However, after completion of basic (initial) training, the ability to make mistakes in execution of shooting is reduced and the possibility of their correction is increased.

Therefore, in training, special attention is focused on preventing and timely correction of possible mistakes in the execution of gun firing, which increases the accuracy and precision of shooting and reduces the risk of occurrence of unwanted events both during the training of security officers and during its engagement in the performance of defined tasks in the provision and protection Persons and property.

Table 5. Triggering errors and how to remove them

<table>
<thead>
<tr>
<th>TYPE OF MISTAKE</th>
<th>CONSEQUENCE</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long pause break.</td>
<td>The length of the respiratory delay causes the need for oxygen, which disturbs the shooter and leads to the oscillation of the arm or weapon.</td>
<td>It cannot be longer than 7 seconds.</td>
</tr>
<tr>
<td>Uneven shutdown (jal when triggered).</td>
<td>The trip at the trigger leads to the destabilization of the line of sight, that is, to the deviation from the point of sight.</td>
<td>When you have calmed down the weapon and right-handedly, pull the tail catcher lightly until you get caught by a bump. Running is the biggest trigger error.</td>
</tr>
<tr>
<td>Shooting when you are not sure that the shooting will be good.</td>
<td>Insufficient training and insufficient experience in firing execution.</td>
<td>Stop pulling the trigger if you're not sure the shot will be fine and take a break. Recharging and interrupting the action is important for achieving a good result.</td>
</tr>
<tr>
<td>Insufficient long pause after a trip or in case you did not get tired in time.</td>
<td>If you do not rest enough and do not breathe enough oxygen in the break after the trigger, or in case you fail to trigger in time, there will be fatigue, which will cause trembling and difficulty in reaching the target.</td>
<td>Lower your hand breathe in the air and tune in again. If you are tired, lay down your weapons, breathe enough oxygen and rest.</td>
</tr>
<tr>
<td>Dismantling the eye's attention from the fly when triggered.</td>
<td>Tension at the moment when the eye is concentrated differently, the time on the fly, the time at the last target, the aiming point, or the black field of the target, lead to poor grouping of hits.</td>
<td>The process of no loading and firing can be separated. Conduct it as one continuous action with the utmost care towards the right target.</td>
</tr>
<tr>
<td>Separating the process of targeting and firing</td>
<td>The strain that the index finger develops when pressing the tail triggers the weapon's stability.</td>
<td>If your strain that develops index fingers when pressing the trigger causes damage to the weapon's stability, pay extra attention to joining the target and the trigger.</td>
</tr>
<tr>
<td>Lowering your hand immediately after the trigger.</td>
<td>If you allow the incidence to be a signal that the action is completed, inadvertent, premature engagement of the hand organs will result, which results in shifting from the standstill.</td>
<td>When the trigger is finished, hold the weapon in a quiet position.</td>
</tr>
</tbody>
</table>

6. ANALYSIS OF THE ACCURACY OF THE SIGHTING AND SHOOTING

The accuracy of shooting is the measurement size between the single ripple ellipse and the target being targeted and defined by their distance at a certain distance. Conclusion about the accuracy is made based on the size of the deviation of the average score from the center of the target, direction and height. What is the deviation of the middle hit from the center of the target, both in the direction and in height, is less that shooting with guns is more precise and vice versa [5]. The accuracy of shooting with guns depends on the training and regularity of the work of the shooting person, the correctness of the pistol, and the type and properness of the ammunition. The deviation of the midpoint in direction and height is mostly affected by the errors of the target and the trigger. By analyzing the data obtained by the experiments carried out, the values of the mean probable errors in the direction and height of the above-mentioned target shooting errors were determined. The accuracy of the target, in this case, represents the mean value of all the errors of the target. When determining the accuracy of the target, the minus (−)
negative error values were taken as absolute because the numerical value of the distance of the mean error of the target point from the control point (center of the target) was calculated, not the point of error (Table 6). 

Table 6. Accuracy of the sighting

<table>
<thead>
<tr>
<th>TYPE OF ERROR</th>
<th>EXCEPTION</th>
<th>UNIT OF MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITION OF FLY</td>
<td>in the direction</td>
<td>in height</td>
</tr>
<tr>
<td>right</td>
<td>111.75</td>
<td>23.31</td>
</tr>
<tr>
<td>left</td>
<td>100.81</td>
<td>2.56</td>
</tr>
<tr>
<td>raised</td>
<td>6.5</td>
<td>132.5</td>
</tr>
<tr>
<td>lowered</td>
<td>9.31</td>
<td>107.25</td>
</tr>
</tbody>
</table>

ACCURACY OF THE SIGHTING 228.37:4 = 57.09 265.62:4 = 66.4 mm

The accuracy of the sighting is 57.09 mm per direction and 66.4 mm in height. The average accuracy value is 61.75 mm, which represents the mean distance of the disturbance error in any direction from the control point-center of the target.

In the same way, the accuracy of the trigger was determined, where the obtained results are shown in Table 7.

Table 7. Accuracy of the trigger

<table>
<thead>
<tr>
<th>TYPE OF ERROR</th>
<th>EXCEPTION</th>
<th>UNIT OF MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>sudden withdrawal of the trigger</td>
<td>in the direction</td>
<td>in height</td>
</tr>
<tr>
<td>forefinger</td>
<td>inducted</td>
<td>137.94</td>
</tr>
<tr>
<td></td>
<td>extracted</td>
<td>125.44</td>
</tr>
<tr>
<td>the scope of the handrails</td>
<td>weak</td>
<td>6.87</td>
</tr>
<tr>
<td></td>
<td>hard</td>
<td>7.44</td>
</tr>
</tbody>
</table>

ACCURACY OF THE TRIGGER 359.88:5 = 71.98 351:5 = 70.2 mm

The accuracy of the trip is 71.98 mm per direction and 70.2 mm in height. The average value of the accuracy of the trigger is 71.09 mm, which represents the mean distance of the disturbance errors in any direction from the control point-center of the target.

Based on the results obtained by the experiments, a comparative analysis of the accuracy of the target and the trigger was performed, which shows the degree of accuracy of the infiltration as a very significant firing phase in the performance of the definite tasks of the security officers (Figure 5)
The errors of the sighting are errors with a lower mean probable error in the direction and in height, resulting in errors of the accuracy of the error with greater accuracy than the trigger errors;

the numerical value of the accuracy of the sighting is 61.75 mm, and the numerical value of the accuracy of the trigger is 71.09 mm, from which it follows that the errors of the sighting are more precise than the triggering errors by about 15%;

by numerating the accuracy of the sighting and the trigger, it is possible to group them according to their influence on the accuracy of the firing and the desired effect on the target (Table 8).

<table>
<thead>
<tr>
<th>serial number</th>
<th>TYPE OF MISTAKE</th>
<th>NUMERICAL VALUE OF ACCURACY</th>
<th>UNIT OF MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fly to the left</td>
<td>100.84</td>
<td>mm</td>
</tr>
<tr>
<td>2</td>
<td>Tight-fitting gloves</td>
<td>105.57</td>
<td>mm</td>
</tr>
<tr>
<td>3</td>
<td>Low fly</td>
<td>107.65</td>
<td>mm</td>
</tr>
<tr>
<td>4</td>
<td>Fly to the right</td>
<td>114.15</td>
<td>mm</td>
</tr>
<tr>
<td>5</td>
<td>Sudden withdrawal of the trigger</td>
<td>123.22</td>
<td>mm</td>
</tr>
<tr>
<td>6</td>
<td>Index finger is pulled out</td>
<td>125.88</td>
<td>mm</td>
</tr>
<tr>
<td>7</td>
<td>High fly</td>
<td>132.66</td>
<td>mm</td>
</tr>
<tr>
<td>8</td>
<td>Easy gripping</td>
<td>133.92</td>
<td>mm</td>
</tr>
<tr>
<td>9</td>
<td>Indexed forefinger</td>
<td>138.27</td>
<td>mm</td>
</tr>
</tbody>
</table>
By grouping the targeting and trigger errors according to the degree of their accuracy and impact on the effect of firing the fire, shown in Table 8, the possible focus of the training of security officers in precise and precise firing by pistols is noted, in the following order of perception and correction of errors: **index finger, insufficient tight gripping, high fly, fingerprint, suddenly pulling the rifle, flies popular to the right, low flies, too tight gripping and fly flies to the left.**

7. CONCLUSION

Risk management, as an activity that increases the probability of project realization within the limits of the defined time, permissible costs and given performance, is a continuous process and is a primary part of the training process for identifying hazards and risk control in the engagement of security officers in the realization of the content defined by the plan and training program.

In the implementation of the duties of private security officers, the use of a pistol is a risky process and depends on a large number of factors. The level of training, quality and correctness of pistols and ammunition and the psychological state of the security officers are the basic factors for proper reaction in the real situation, which implies the effect with the least damage and a positive effect.

The achievement of the level of precise and precise gun firing is the focus of quality training for private security officers in order to eliminate or reduce the risk of occurrence of unwanted events both in the training process and in the use of a pistol in the real situation of protection of persons and property. Therefore, persons trained for security officers need to be familiar with the mistakes in the execution of guns by precision firing, as well as the methods of their removal. By practicing the elimination of defects in shooting guns with precision firing, greater accuracy and precision is achieved, which reduces the risk of negative occurrences and increases the likelihood of achieving positive effects when using a gun in performing defined tasks by a private security officer.

The paper presents the effect of errors in achieving the final effect of firing pistols with precision firing and quantified accuracy and triggering accuracy, as important elements of the opening of fire. A comparative analysis of the accuracy of the target and the trigger was made, based on which it was found that the accuracy of the error of the target is greater by about 15% than the accuracy of the trigger errors.

The implementation of the obtained results, the adopted attitudes and the conclusions reached in the training of security officers in handling and use of the pistol as a firearm, shown the errors of shooting and triggering are grouped in accordance with the numbering of their accuracy and the order of perception and correction of errors during the training is defined.

Based on the presented in the paper, it is noted that risk management in the training process and during the engagement of private security officers is a mandatory and very important activity of the decision maker, which ensures the successful execution of defined tasks in the real situation, with minimal consequences for the people and the technique. In addition, it is necessary to emphasize that modernizing training in precise targeting and firing improves the overall training process in the handling and use of the pistol, and that the implementation of the presented results increases efficiency and reduces the risk to an acceptable level in solving the set security and protection of persons and property.
LITERATURE


THE DARK NET AS A NEW BLACK MARKET AND SECURITY ISSUE

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Abstract: We live in an era where computers dominate most aspects of our lives. There isn't a business anymore that doesn't use benefits that IT provides. One field where IT and networks dominate is trade. There are many new trading models that we call e-commerce. For ordinary people public websites and portals as Alibaba, E bay, Amazon, etc. provide everything that ordinary people need for their household, business or leisure. Problem with public portals is that all transactions could be monitored, that is the main reason why a totally new market emerged (The Dark Net). This is a market for spies, criminals of all sorts, and those who seek privacy of their electronic transactions. This has become a new issue that can harm a security of any individual or organization worldwide. Role of this paper is to scientifically explore and describe this new security issue.

Keywords: Dark Net, Security, Black Market

1. INTRODUCTION

We live in an era where computers dominate many aspects of our lives. No matter where you look, you will see some kind of computer. Most of the computers are connected on some kind of network, or even directly to the Internet. Well that is not a subject of this paper, we won’t be talking here about networks, we will talk about a way that most people use them – for trading and information exchange. When I thought of this subject and the way this paper should be written and a subject explored two questions came to my mind: 1. Why is this so important subject that an author of this paper is interested in it? 2. Why is that so important from a security point of view? Well, author of this paper thinks that the shortest answer to this two questions is just too long even for this paper, but here is a start. As you probably know Internet services (Common Web or Cyber Space as we know) for most of the time of their existence were meant for communication and information exchange. Sometime at the end of 20th century and the first years of 21st century new way we can use our networked computers emerged – electronic trade. At that time Internet was still relatively free of governmental control and it was hard to monitor transactions that took place there. So this was a time of almost full freedom. There were many freedoms, freedom of speech, freedom of communication and freedom of trade. As for the freedom of trade, there were and there still are many websites and portals that provide legal trading services (Amazon, Ebay, Alibaba, etc.). Of course freedoms on the net changed very shortly, when 9/11 took place. All the freedoms on all the media became an object of repression and control. Ordinary people still use their Internet services for communication, trade and similar activities, but something new emerged from the US Navy labs (The TOR Network). That new network used standard
network connection, but it had implemented something totally new in the arena, encryption of all the data and decentralization. At first this new network played an important role in US Intelligence and covert communication (anonymous Web surfing and protected communication through Internet for the Navy), and do to some new developments and strategic thought it became open for the public. As with many other similar developments (Internet for example) some individuals and organizations came to an idea that it can be used for anonymous communication and other uses that could potentially bring them real material benefits. Most of those uses could be tagged as illegal and potentially harmful to individual (personal) and even global security. That was an emergence of new global network, that at later stage became famous for its users (criminals, terrorists and spies), as well as a new kind of black market. That was, and to a great extent still is a true freedom network, free from governmental control (but there are still ways for monitoring to some extent), and free from moral and ethics. It is now a kind of virtual space where individuals and organizations can buy anything (from drugs to plans for weapons of mass destruction). Very interesting thing is that the Dark Net provides you even with illegal services, ranging from hacking to killing people. All this possibilities that anyone can have at his own disposal makes the Dark Net very interesting for researchers in many fields, one of them is certainly security and intelligence. That is a partial history of this new security problem and the rest of it will come in next chapters. The next chapter is a place where all the important terms for this paper are defined and explained.

2. EXPLAINING AND DEFINING KEY TERMS AND EXPRESSIONS

This chapter covers the definitions and explanations of key terms for this paper. The terms that author is trying to define and explain in this chapter are black market, e-commerce, Tor Network, Dark Net (Deep Web), crypto currency, Bit coin. All these terms are very important not just for this paper, but also for the normal life in 21st Century. First term that is going to be defined here is black market. The reason behind the importance of this term is that it is a central part of this paper and a main reason why Dark Net is so dangerous from a security point of view. Let’s just define a term black market. First we need to define or explain a term market. What is a market? Market represents an economic term for a place where legal transactions/trading takes place. Better to say that it is a place and/or a legal context in which goods and money change hands in accordance to rules of economy and legal framework. On the other hand we have something that is called black market. That could also be described as a place and a context where transactions take place, but this time transactions are mostly illegal, and trade is not governed by law. Best way to describe and define this very important term by author’s opinion is given in next definition: A black market, underground economy, or shadow economy is a clandestine market or transaction which has some aspect of illegality or is characterized by some form of noncompliant behavior with an institutional set of rules. If the rule defines the set of goods and services whose production and distribution is prohibited by law, non-compliance with the rule constitutes a black market trade since the transaction itself is illegal. Parties engaging in the production or distribution of prohibited goods and services are members of the illegal economy. Examples include the drug trade, prostitution (where prohibited), illegal currency transactions and human trafficking. Violations of the tax code involving income tax evasion constitutes membership in the unreported economy[4]. This is a definition of a black market given by Edgar L. Feige in 1989.
Next term that needs to be explained is e-commerce. E-commerce represents transactions that live on the Internet. That is a name for electronic trade, where all the transactions take place in a virtual space (Cyber Space). Some of the legal examples that you can find on a common Web are numerous portals and e-shops, just to name a few (Alibaba, Amazon, eBay, Limundo, etc.).

Next term that needs to be defined is Tor Network. Tor Network is a very ambitious project that started in mid 1990s in US Naval Research Laboratory. Main reason for this project was a need for clandestine protected communication network for US Intelligence Community and Navy. At later stage sometime in 2002 it became a publically available, community project that had some innovations implemented. First name given to this project was “The Onion Router”, at later stage it became known as “TOR”. That innovative network is unique because it uses standard public Internet infrastructure, but with a parallel volunteer server network which works as a network for routing the traffic in order to make it hard or even impossible to trace. One more characteristic of this network is that it is not easy accessible and that it uses encryption of all the data transfers. In order to use this network you need special browser called TOR Browser[7]. This network allows its users to search the Web free from tracking, it provides a very specific way of clandestine communication and a special type of parallel Web with unique services and new website philosophy. That new, parallel Web is being called “The Dark Net” or just “Deep Web”. On The Dark Net there are many services that users can benefit from: from forums, social networks, hosting services, to portals where e-commerce is taking place. Everything mentioned here has one major difference from a similar service on a regular Web, this services are mostly illegal.

One of the most important terms is a term crypto currency. That term represents something totally new in contemporary economy, a currency that is not material and only the market and its laws regulate this kind of currency. This is a unique approach, and other name for this kind of currency is Virtual Money. Virtual Money or Crypto Currency are two names that best describe this kind of currencies, main difference between them and regular currencies is that they are generated by computers. Most famous crypto currency today is BitCoin. This currency is computer generated, not regulated or governed by any state or law and it provides its users with a full anonymity of their transactions. That means that whatever and wherever you buy something your data won’t be disclosed to the seller and he will get a money. Bitcoins can be used directly for trading, but mostly on Internet, but they can be exchanged on a special kind of market for trading Bitcoins. The anonymity of all the transactions that involve Bitcoin makes this currency ideal for illegal transactions. These were the terms that this paper heavily relies upon. In a next chapter author will write a short analysis of Dark Net and its services.

3. SHORT ANALYSIS OF DARK NET AND HIDDEN SERVICES

The Dark Net (or Deep Web) is a parallel network that uses common Internet infrastructure in combination with some protective measures (data encryption, rerouting, special ports, volunteer server network, special domain and browser and other technologies) in order to provide anonymity for its users. The Dark Net is formed by a TOR Network, and it has many special features. All of the features provide anonymity and functioning of a real parallel Web, that has its own set of rules and that provides various services, most of them in illegal sphere. This network uses its own domains .onion which are not indexed and viewable by normal search engines. Even if you know
the addresses of this websites, that by the terminology used by TOR Project (nonprofit organization behind this service) are being called the hidden services, you find them. Hidden because you need the exact URL and special (TOR) browser to find and view them. Nobody can tell exactly how big this network is, there is only a number of indexed onion pages by TOR Network (Dark Net) main search engine called Torch, that number is 255826 pages. Some sources claim that there are many more pages, about one billion. All this pages are totally invisible for standard search engines like Google, Yahoo, Bing, Krstarica and even DuckDuckGo (Which is anonymity providing search engine, but if you look for some hidden services using the Tor Browser you can view some hidden services). That invisibility and strict privacy policy of the provider of this services make all the actions hard to track. All mentioned before leads to a conclusion that this platform is ideal for illegal activities. By analysing hidden services author of this paper came to one very disturbing fact, that is the fact that most of this services are illegal electronic markets. Some of this websites offer drugs, guns, stolen goods (credit cards, mobile phones, PayPal Accounts, cars and other items), state secrets (mostly US), pornography, and of course there are some services like private armies, killers for hire, fake documents (passports, ID Cards, Drivers Licences and more).

Some of the most famous hidden services that sell drugs are Silk Road, DrugMarket and People Drug Store. There are also some weapons/arms trading shops like one of the largest that works mostly for EU market called Euro Guns. This e-shop has both used and new illegal guns. Some sources claim that it has a very large profit.

Of course you can find even professional killers for hire, one of the most famous services of that kind is Hitman. These are the services this website claims to provide all over the world: assassination, stalking, beating, slaying, maiming (a version of beating somebody until he is severely injured with life lasting consequences). There are also a few groups, private armies or better to say guns for hire, like one of the most famous called Black Mamba. They offer a variety of services much like before mentioned, but with some services that only armed forces can provide[8]. This was just a small portion of illegal and dangerous services that you can find on a Dark Net.

There are a few very interesting things that need to be said about Dark Net and a way it functions as a black market:

- First thing is that hidden services of the Dark Net in order to trade with goods and services use a special forms of currencies, called crypto currencies. Mostly used currency for all of the transactions is Bitcoin. Reason for that kind of popularity of Bitcoin in this market is its anonymity. All of the transactions are anonymous, and very hard to trace to the parties involved.

- Second thing is that most of the marketing-channels that have normal Web users at their disposal, there are also anonymous variants for those that trade on the Dark Net. For example there are a few search engines specialized in searching .onion domain, they have banners, also there are social networks just for those that use Dark Net (Facebook- spec. ver., Blackbook, Moneybook and many more).

- And most important thing that guarantees that the business/deal will be done and transaction paid, there is a special service, with many providers called escrow. The escrow provider is a middle man between the two parties that holds payments until the job is done. That way the parties don’t come in to direct
contact, and both sides have an insurance that the job will be done and expenses paid.

- There are even special logistics, delivery services for illegal goods (drugs, weapons, organs, etc.)

Everything that modern electronic market needs Dark Net has. This infrastructure is one of the most important characteristics of this kind of market. All the anonymity that this platform provides helps criminal entities, malicious individuals and terrorists in their “business”. Everything that they could possibly need is there. Much of the logistics of some terrorist operation could be done through this network. There isn’t only a weapon supply chain that terrorists could use, there are numerous ways they can get target intelligence, there is a way to organize full logistics (even if borders and whole countries are in a state of alert). Every communication and transaction is hard to trace, and maybe in some cases even impossible.

Finances are also one of the key aspects of any operation (no matter if it is legal or not), Dark Net provides many ways for earning money, that won’t be reported to tax administration. One way to earn money is to sell some illegal goods or services, the other is to promote services from some of the .onion portals that sell drugs or other illegal goods and services. This innovative way of promoting goods and services from another vendor exists in a normal electronic trade that takes place every day on a regular Web and websites that trade goods and services legally (Amazon, AliBaba, E-Bay, etc.), and is called affiliate marketing. In this case any kind of marketing is illegal, because all of the goods and services are illegal (there are a few exceptions, like if trading of some drugs is legal in some country). That was a short analysis of this lucrative and dangerous virtual place, that has all the characteristics of a black market, but one that is modern and well adapted to 21st century.

One very important note for this analysis is that this market is not bullet proof, and that a shield of anonymity protects those involved in illegal transactions only to some extent. One evidence that backs up this claim is a recent arrest of the group behind the largest drug trading portal on the Dark Net called Silk Road. This bust happened on a first of October 2013., at the time this happened this drug trading portal had 957,079 registered users and generated about 1.3 billion dollars of profit in Bitcoins[9]. After this bust most of the experts (some even from a TOR Project) and users say that a trade of drugs has more than doubled after that.

4. CONCLUSION

We live in an age of innovation. Everything changes, sometimes bit by bit, but in many spheres the changes are so fast that are hard and expensive to grasp. This new era has new way of exchanging goods, money and services. There isn’t any more a need for two parties (buyer, customer) and seller of the good or service to meet face to face. This rapid development is present in a “dark realm” or Dark Net as we know it now. That fact that you don’t have physical transaction anymore is a hard blow for law enforcement services and intelligence services alike. Security and Intelligence organizations need to adapt to the new way of communications and exchange of goods and services[1]. First step in this epic new battle is to know your opponent and the characteristics that define him. This paper was one kind of the expedition in the unknown realm, with only few scientific, methodological tools as a weapon in an effort to describe and explain something that could pose a significant threat to national security of any state and nation. Anything that
could potentially serve terrorist or insurgents in their operations logistics should be controlled (or at least closely watched by intelligence communities all over the world). This kind of technologies constantly evolve, and that is one of the reasons why they should be closely monitored and regulated by national and international security policies. One of the main reasons why we don’t have such mechanisms implemented on all levels is a fact that this “dark realm” provides ideal platform for communications and operations logistics for intelligence services all over the world. Whatever security measure is implemented, and procedure, the best way to harm your enemy (or to protect yourself) is to hide in a plain site. All the illegal transactions that take place there, cover those with a biggest importance and largest scale.

LITERATURE

DEFINITION OF AGGRESSION

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Abstract: The paper discusses a segment related to modern engineering conflicts and military interventionism, and that's aggression and its specific type, armed aggression. The text explains the concept of aggression in the context of contemporary security threats. Power and force become the main features of contemporary international relations and armed aggression and aggression are the ways (methods) of exponentials power and force, and the means to achieve the interests of „great countries”. Aggression and military aggression are very frequent terms and often inappropriately used and interpreted. The text explains the concepts of aggression and aggression over the theoretical definition, role in contemporary international relations and through related concepts and phenomena. A special emphasis is given to the work on the classification and classification criteria aggression.

Keywords: aggression, armed aggression, power, force.

1. INTRODUCTION

Many contemporary theorists security and globalization, believe that the phrase „based factors of security in the 21st century” means: (1) socio-economic factors, (2) economic inequality and asymmetries of life chances, (3) limited economic resources, (4) demographic explosion, (5) a global culture, (6) organized crime and criminal, (7) military factors security, (8) means the total of war and militarization of cosmos (9) of the engineering conflicts and military intervention, (10) the environmental factors, (11) technical and technological disasters, (12) the lack of healthy food and drinking water (13) extremism (national, religious and ethnic), (14) expansionism of transnational security agencies, and (15) terrorism.

The paper discusses a segment related to engineering conflicts and military interventionism, and that's aggression and its specific type, armed aggression. The content of the paper is divided into three sections that provide a unique image, a conceptual approach to the definition of aggression, and in particular one of its forms (most frequent), its manifestations - armed aggression. In the first part the focus is placed on explaining the power and force in contemporary international relations, and to explain the relationship of power politics. The second part concerns the basic theoretical provisions related to aggression and aggression, with special reference to the definition and classification of aggression. The distinctions between the concepts of armed aggression and related concepts treated in the third and also the last part of the paper.
2. CONTEMPORARY INTERNATIONAL REALTIONS

At the bipolar organization of international relations, the world has rested in the second half of the 20th century. Two ideologically opposed superpowers imposed the world's two concepts of social and economic development, two attitudes toward international trade and the world market and, generally speaking, two value systems. Upon completion „the Cold War," at the end of the ninth decade of the 20th century, is a paradigm prevailed. It is a paradigm „mundialization of world" or create a unique form of social organization, economic, political, cultural, and social consciousness. All the above are actually the basic elements of the paradigm of government of the world, all under the auspices of the development of a democratic society, the rule of law and free, single market. Consequently it can be argued that socialism „the transition period from capitalism to capitalism ". From the bipolar world structure has entered a phase unipolar with the supremacy of the United States. As a result, in the late 20th century, a legal organization based on the Charter of the United Nations (UN) did not correspond to the actual state. Dominant forces are basing their supremacy on technological superiority and economic impact of the spread. Based on each country's dominance is in fact an economic power that is poured into the military, and the cohesion of the economic and military power gives political power. However, there are exceptions to these claims, such as the Federal Republic of Germany during the 20th century became an economic „giant" but it was and remains a political „dwarf" on the other side of PR China has long been economically backward country, compared to the leading countries of the world, but it is the political (global) plan was very influential (permanent member of the UN security Council). [9] The importance of the force and power of a ruler or for one country, and in the broader context of speaking and international relations, wrote more Niccolo Machiavelli in his book „The Prince", where, according to Machiavelli, doomed the ruler to gain power, but has no power, because people can easily persuaded, but they are difficult to hold the same belief. The same writer thought that the state has neither life, nor soul, nor its interest, but it is a mere creation of human skills or concentrated social power that can be directed in different directions. Although there was an opinion that will be after the end of „the Cold War" reduce the role of the military potential in international relations, it did not happen. Great powers do not want to complete an armed conflict, that is total war, and resort to interventionism to be solved at the local and/or regional level. The core of the intervention of aggression and that aggression will be specifically applied primarily depends on the power that has the object of aggression and how the important object of aggression for the aggressor. Each country aggressor tends to exhaust all possible non-military means, so that the object of aggression carried out by the will of the aggressor. Armed aggression after the Second World War became a last resort, the ratio communication vision in international relations, because finally after Mils „violence is the latest form of power." Over two concepts: _power_ and _might_ best be described contemporary international relations and contemporary international politics. Power is divided into „tangible" and „untouchable". Touching power usually refers to the financial indicators and cash, as well as the size of the territory, natural resources, population and physical indicators of military power. Often referred to as „hard power " (hard power) and the untouchable power is referred to the phrase „soft power" (soft power). The soft power in contemporary international relations is one of the national will, diplomatic skills, the support that the government has the people and the like. Soft power is often defined as the ability to achieve the desired outcome of the appeal, rather than coercion and payment. [7]
3. AGGRESSION AND ARMED AGGRESSION

Define the concepts of aggression and armed aggression is a complex task. Modern society has made enormous progress in the information-technological point of view, especially in the fields of mass communication technologies, techniques, economy and science, and consequently cannot provide for procedures, methods and means may be an abuse of these achievements, which are intended for people primarily to improve the living and working conditions. Today we have many different definitions of aggression and in this paper we deal with those most important and also the most comprehensive. In international legal relations aggression as a term first defined in 1933 in the London Convention concluded between the former Soviet Union - and 10 countries. Since then, until today emerged many definitions of aggression, especially at the UN General Assembly. According to UN Charter (Article 2, paragraph 4) aggression is a crime, which is banned for use in international relations. That act prohibits not only armed attacks but also any use of force that would be directed against the political independence or territorial integrity of any State, or in contravention of the purposes and principles of the UN. The official UN definition of aggression was the 29th regular session of the General Assembly, held on 14.12.1974. the aggression is defined under the resolution number 3314. The text of that definition reads as follows: ,, aggression - the use of armed force by a State against the sovereignty, territorial integrity or political independence of another State, or in any other manner inconsistent with the UN Charter. Each of these documents to be an act of aggression: a) attack or invasion of the armed forces of a state in the territory of another state, or any military occupation come out of it, or each occupation in another state of use of force; b) the bombing of the territory of a state of the armed forces of another State or the use of any weapons by a State against the territory of another State; c) blockade of ports or coasts of a state by other countries; d) the attack of the armed forces of a state on the land, sea, or air force, maritime or aeronautical fleet another state; e) the use of the armed forces of a country which is on the territory of another State, with the consent of the receiving state, contrary to the conditions provided in the agreement or extending their presence in the territory after the expiry of the agreement; f) shares of a state that puts its territory at the disposal of another country that used to commit an act against a third country; g) sending from, or on behalf of a state armed bands, groups, irregular soldiers or hired, to perform, against another acts armed forces so serious to become equal to the above-enumerated activities or its significant part in it. However, the Security Council may determine that other acts constitute aggression under the provisions of the Charter. [4] Milan Vujaklija in the Dictionary of Foreign Words and expressions defined aggression as follows: ,,aggression - (lat. Aggressio) attack, attack, swoop; aggressiveness; unprompted attack with the aim of subjugation, of conquest." [2] In the Sociological lexicon aggression „is defined as planned and organized action of the armed forces of a global society-state, the second state-society, in order to subdue her attacker to the extent that suits them best, given his interests, power and international military-political relations. Aggression is attacked, the company brings in the most difficult challenges; it is force undermines individuality attacked society, disrupt or redirect flows of its development and it is leading to a smaller or larger depending on the aggressor." [8] The definition of aggression given by General Slobodan B. Mikić in the book „View of War“ can be considered the most comprehensive and acceptable, provided that care must be taken to redefine the existing definition in accordance with the security, political and geo-strategic trends. According to Slobodan B. Mikić „aggression is an act that is contrary to the provisions and spirit of
international law and the UN Charter. Is performed by a state or coalition of states, on the other internationally recognized state (or a portion thereof, or a group of countries), forcing it to submit to its will and interests. Such an act by force violate individuality, sovereignty, freedom and integrity of the attacked state, disrupt or redirect flows of its development and life and it leads to greater or lesser degree depending on the country (countries) aggression. Aggression can be performed advertising, political, military or other means, methods and procedures." [6] The attitude of aggression and armed aggression, the general attitude towards the special, but it's important to point out that the armed aggression of the best known and most recognizable type of aggression. Consequently, most often these two terms are used interchangeably. In accordance with the content and methods of armed aggression is acceptable following definition of armed aggression: ,,armed aggression - unprovoked attack one or more countries to another, which can threaten the independence, sovereignty or territorial integrity of the attacked country. Armed aggression carried out using military force, but also includes other actions directed against the territorial integrity or independence of another State, or against peace in the world. Possible forms of armed aggression are: invasion, naval blockade, various forms of attack of the armed forces on land, by sea and from the air, the use of armed forces stationed on foreign territory in the aggressive purposes and allow a foreign power to use someone else's territory for attacks (the fact) that at the level of aggression." [1] It is important to emphasize the fact that aggression in terms of international and criminal law of the Republic of Serbia (RS) is considered a criminal offense. Aggression is a crime against peace and international security. In international law, the crime of aggression acknowledged a number of international documents such as the Statute of the International Military Tribunal in Nuremberg, the Statute of the International Military Tribunal for the Far East, Law No. 10 of the Control Council for Germany and the Rome statutes of the International Criminal Court. It is interesting that this difficult international criminal offense not know the statutes of the ICTY and the ICTR. In domestic criminal legislation RS prescribes this offense called ,,aggressive war". This criminal act consists in inviting, encouraging or ordering conducting an aggressive war. For this work regulated a prison sentence of two to twelve years in prison. The most severe form of aggression exists when direct a war of aggression. For that offense is punishable by imprisonment of minimum ten years or imprisonment of thirty to forty years. [3]

3.1. Classification of aggression

At base the previously presented results, we can conclude that we have many different definitions of aggression, both administrative and academic. For the successful definition of the concept of aggression we need to first define the constituents of the determination, as well as their content. The nature and character of the concept of aggression can be explained only if we take into consideration the following constituents: (1) the objective aggression, (2) the means and methods (methods) for the aggression, (3) and the object of aggression (4) carriers aggression.

The objective of aggression - partial or complete disruption of the constitutional order of the country that is the victim of aggression. On the territory of the country create the political and overall situation and the situation that suits the interests of the perpetrators of the aggression. The act of aggression is completely contrary to the principle of self-determination and the right to decide their own destiny, their position and interests. The
The perpetrator of aggression is based solely on their own interests, and of seeking to impose its will, policies, standards and authorities of the State and the people who are the objects of aggression. [5]

Means and methods (methods) for the aggression - in modern conditions aggression can be performed following methods and means: advertising, political, economic, means in culture, medical, science and sports and military forces and resources. Military resources and armed forces are mainly used in armed aggression and represent the final option, if the intended objective cannot be achieved by other specified means, or other types of aggression. Choice of ways and means to commit aggression depends on the strength and internal stability of the country which is the object of aggression. In the case of small or unstable state, aggression can be realized by the use of resources in the domain of advertising, political and / or economical and sanctioning. [5]

The object of aggression - can be one or more states, or part of the territory of an internationally recognized state. The operation is aimed at: the political and economic foundations of the state, living conditions and standard of citizens, the organization and the authorities of the state, the economy and economic potential, human rights and freedoms of citizens; or all of the essential elements of life for people in the territory of the object of aggression. Aggression on the part of the territory of the internationally recognized state is usually done for the purpose of providing assistance and support to the secessionist forces that seek to secede and form a separate state or to join a neighboring country.

Holders of aggression - initiators, planners, organizers and perpetrators of aggression are: authorities, institutions and armed forces of some internationally recognized state or union of states. The main carriers of aggression are external factors, or foreign state or country. Forces and organizations within the state victim of aggression cannot be aggressors, but can only be operational cooperation with the aggressor in the process of achieving the target of aggression. State or coalition of states that prepared, organized and carried out aggression is called the aggressor. The most common aggressor seeks to obtain the international legal cover-aggression which preparation, while using all available political and diplomatic means starting from the point of force and power at its disposal. [4]

On the basis of numerous examples of aggression committed in the past and present conditions of international relations there is a need for the classification of aggression. In addition to common characteristics, each has certain characteristics are aggression which distinguish it from the others. Classification includes determining baselines for implementation of the same. There are many elements and criteria for classification of aggression. For the purposes of labor were selected criteria that are commonly used in the classification of aggression. Review of the criteria and type of aggression is given in Table 1.

Each individual aggression can be subsumed under the above criteria of classification. Likewise, any aggression is different from the other in many characteristics. Aggression as a phenomenon very complex to study, primarily because the aggressors hold many facts in connection with the preparation, organization and execution of aggression, a secret from their (domestic) and international (foreign) to the public, with the greatly manipulate people and official bodies and institutions in order to conceal the aggressive acts and goals.
Table 1: Classification of aggression

<table>
<thead>
<tr>
<th>No.</th>
<th>Criteria</th>
<th>Type of aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The specificity of the target of aggression</td>
<td>Different objectives determine the type of aggression, including: the impact of the policy change, extorting concessions, imposing solutions, support the separatists, a change of government, limiting military power, occupation of territory, control the territory, changing borders, the occupation of the country and / or liquidation of state</td>
</tr>
<tr>
<td>2.</td>
<td>Coverage area of aggression</td>
<td>Aggression on: part of national territory, the territory of the entire state and territory over the country.</td>
</tr>
<tr>
<td>3.</td>
<td>Participants engaged in aggression</td>
<td>One state and several countries</td>
</tr>
<tr>
<td>4.</td>
<td>Power, methods, means and ways of realization of aggression</td>
<td>Propaganda, economic, political, and armed aggression in other areas of life</td>
</tr>
<tr>
<td>5.</td>
<td>Level of objectives realization of aggression</td>
<td>Complete and partial</td>
</tr>
<tr>
<td>6.</td>
<td>Duration of aggression mode</td>
<td>Short-term and long-term</td>
</tr>
<tr>
<td>7.</td>
<td>Leadership</td>
<td>Aggression with: the agreement of the participants and to the education of a joint body (Staff)</td>
</tr>
<tr>
<td>8.</td>
<td>International legal framework</td>
<td>Aggression: without the consent of the official organ of the international community and with the formal legal approval</td>
</tr>
</tbody>
</table>

4. ARMED AGGRESSION AND RELATED TERMS

Aggression and military aggression are very frequent concepts in everyday life and in social superstructure, primarily in science (psychology, medicine and sciences of Defense) and politics. In military terms, these practices occur at the time of creation of the first state or the occurrence of wars between states. From that time until today, states often went to conquer the territory of others by imposing their will and the power of other states. In theory The Defense Science concepts aggression and armed aggression occurs only in the 20th century. Unfortunately, according to scientific uncertainty listed of terms are misused for various purposes, especially by journalists and politicians. In particular stood out abuse of the concept of armed aggression and its identification with similar terms. Misuse of this term usually aims to manipulate public opinion in order to achieve certain political interest in international relations and the justification of certain government policies towards certain countries and nations. Consequently, in the remainder of this paper will explain the distinction between armed aggression (the most
commonly occurring forms of aggression) and related terms.

Armed aggression and violence. "Violence is the use of force to extract a certain behavior of people against the will, and the specified result." [8] Consequently the force is in fact genuine essential determinant of violence. The armed aggression using violence (of any kind) to impose a solution that responds to the aggressor. Violence is disputed or distort individuality, sovereignty and integrity of the victim state. It imposes the will of the aggressor, contrary to the interests and will of the citizens of the victim state. Based on these findings, we see that violence is only a method of armed aggression, therefore a narrower concept.

Armed aggression and armed intervention. Armed intervention is illegal interference in the internal affairs of a country using the armed forces, which deny its sovereignty and independence. The dominant form of armed intervention of the armed help of the state to one side in an internal conflict. A special form of armed intervention is the so called humanitarian intervention. Undertaken with the purpose of actual or alleged deliverance from life-threatening group of people that a foreign government endangers or is unable to protect, regardless of whether its citizens, thus violating the principle of non-interference in the internal affairs of the country. If we compare the goals and ways of achieving armed aggression and intervention, we come to the conclusion that there are no essential differences. In both cases it is interference in the internal affairs of another state for the purpose of changing the existing situation in it. The notion of armed (military) intervention or intervention is usually only used in the policy in order to cover military aggression and to make the act more easily accepted by the public opinion, that these concepts actually are synonymous. [5]

Armed aggression and occupation. "Occupation, temporary occupation of the territory of a country or part of the armed forces of other countries, and establishing it on the occupying power." [1] The occupation and military aggression is one of the most misunderstood (intentional or negligent) interpreted concepts. The best example for this is the time of the civil wars in the territory of the FR of Yugoslavia.

Armed aggression and civil war. As long as the civil war in a country participating forces and formations belonging to the citizens of this country and who exist on the territory of this country, one cannot speak of an armed aggression and the aggressor. Armed aggression carried out only by external factors, the state (their armed forces, organizations, and institutions), which in this case aggressors. Simply put, as long as the civil war exclusively internal affair of a particular state, we cannot speak of an armed aggression; only when the thing internationalize when external factors take their share, then appear armed aggression and aggressors. Participants of the civil war cannot carry out armed aggression and to be the aggressors until participating in the civil war on the territory of the (former or former) state. If the power of some of the belligerents moved to the territory of another country without its approval, these forces could be considered the aggressor[4].

5. CONCLUSION

The time in which we live is characterized by many conflicts, thus permanently endangering state security. The great powers avoid global, open and total conflict (war) as it would for them have disastrous consequences, especially as many countries possess weapons of mass destruction, and its use in such a conflict could not be ruled out. For that purpose, the various types of „interventions", with the intention that as many countries drawn into the process. To them „intervention", in fact armed aggression, less
cost, large forces are often created and coalition countries, and in this way „burden” - the financial dimension of intervention allocated to other countries and their allies[4].

For the purpose of preserving and advancing world peace (world peace), it is necessary that the following conditions are met: (1) relations in the international community should be based on international law or the UN Charter (the principle of peaceful coexistence) and other documents from the area, (2) the elimination of social and economic differences between countries and peoples, (3) general disarmament, (4) equality of all people according to international standards, (5) true and bona fide information, (6) the rule of principle: justice, morality and humanity, (7) the policy must be in the interests of all people and the elimination of any kind of aggression, especially armed.

The work represents a modest contribution to the theoretical definition and classification of aggression, aggression is a challenge, risk and threat to contemporary international security or aggression with all its forms, in a broader sense represents a disturbing factor of contemporary international relations. The first step in solving problems is its definition. This is very important to point out that in the context „chaos” in the terminology related to security, was created after the 11.09.2001. the activists and attacks of the terrorist network Al Qaeda on the World Trade Center and the military-strategic facilities in Washington, and the US as a whole, when different „security experts” (scientists, theorists, analysts, etc.) began to appear en masse, and theirs, „defining” concepts in the field of security entered turmoil in the theory of security.

REFERENCES
[8] Sociološki leksikon (1982), Savremena administracija, Beograd
Abstract: Modern times also bring about contemporary security problems, which necessarily leads to the conclusion that intelligence services must be reorganized and kept up-to-date with emerging situations. Intelligence services have different tasks, and one of the basic information collection that can threaten the security of the country through espionage, terrorism, political violence, organized crime or some activities that can harm other countries. The subject of the paper is the introduction of the Republic of Serbia's intelligence and security system in the active countering of terrorism as a factor of internal threats to the Republic of Serbia, its constitutional order, as well as a threat to the security of its citizens.

Key words: intelligence, defense, terrorism

1. INTRODUCTION

Security-intelligence agencies, although cloaked in secrets and in a great deal of mystification, due, at least partly, to their activities in the past, still represent a significant segment of the security system both in the Republic of Serbia and in any other state. The phenomenon of intelligence-security agencies has developed in parallel with the evolution of the state and it has undergone numerous processes and shifts. The purpose and contents of security agencies’ activities have been changing in accordance with changes in historical and revolutionary movements. Terrorism as a serious threat to security calls for a continuous and synchronized activity of all agents within the national security system in the Republic of Serbia. This work offers an analysis of intelligence-security system of Serbia as a part of the anti-terrorist defence system.

2. SERBIAN INTELLIGENCE-SECURITY AGENCIES IN THE ANTI-TERRORIST DEFENCE SYSTEM

“Security and intelligence agencies of the state are commissioned, authorized, and enabled to uncover and oversee, using irregular measures, that is, specific (covert) methods and means, illegal activities of terrorists, to use gathered information to strengthen their own operational-intelligence abilities, to inform state leadership of the nature of terrorist threats, to analyse and estimate the scope and nature of terrorist aggression, and to transform, with the approval of the judiciary, their insights into material evidence.” [1]

Security-intelligence system of a country can be defined as an independent, relatively autonomous state institution. It is its task to timely uncover and prevent internal and
external threats to national security and protect vital national interests, using covert and legal methods. The intelligence-security system of the Republic of Serbia is presently regulated by a number of laws, the most significant of which is the Law on the Basics of Organization of Security Agencies of the Republic of Serbia. According to this law, the security-intelligence system of the Republic of Serbia is composed of the National Security Council, the Coordination Bureau for Security Services, security agencies (Military-Intelligence Agency, Military-Security Agency, and Security-Intelligence Agency), and the National Assembly Security Services Control Committee. The Coordination Bureau for Security Services is a body that regulates cooperation between two or more intelligence and security agencies. Its members are officials who are competent in the field of determining the essence of operational-intelligence activities of security agencies (directors of separate security agencies and the Secretary of the National Security Council). The Coordination Bureau for Security Services can include other legally approved members of certain bodies (Police Commissioner, Republic Public Prosecutor, and others). “Jurisdiction of the Bureau encompasses four groups of tasks:

1. it determines tasks that are executed by operational coordination of activities between security agencies and between security agencies and other state institutions and, consequently, coordinates their activities;
2. it determines modes of operational coordination in particular cases;
3. it establishes mixed working bodies for operational tasks that are executed by operational coordination and determines their tasks;
4. it analyses results of operational coordination and, if needed, informs the National Security Council about them at least once every six months.” [2]

“The establishment of the fact of Serbia’s exposure to a (direct) terrorist threat is a complex, responsible and risk-laden duty, which implies adequate honesty, professional responsibility, and expertise of its holder. It requires realistic comprehension of:

1. terrorists’ capabilities,
2. Serbia’s anti-terrorist capabilities, and
3. posture (genuine or deceptive) of subjects in the security surrounding of our country towards terrorists who attack its vital values.” [3]

Measures taken against terrorism have conventionally been grouped in several categories. In some countries those measures are simply termed “fight against terrorism”. Activities related to this fight are divided into two categories: counter-terrorism and anti-terrorism. [4] Counter-terrorism refers to offensive measures that usually include the mobilization of deadly forces, directly aimed at terrorist operational structures and their activities. The best illustration of this is the use of special shock tactics during hostage crises. Due to its connection with the law and military forces, counter-terrorism obtains a dimension of secrecy and parcelization. Anti-terrorism refers to passive, defensive measures that are taken to prevent a terrorist attack. [4] The tasks of counter-terrorist intelligence activity within the counter-terrorist defence system are delegated to intelligence-security agencies. “In order to keep the intelligence system effective and efficient, it is necessary to establish expert coordination on three levels:

1. between intelligence-security agencies in the system of defence;
2. between intelligence and security agencies on the state level; and
3. between intelligence-security agencies on the state level and related systems in allied, partner, and other friendly states and international organizations.”

To ensure effective cooperation and coordination, it is necessary, before all else, to organize a separate, permanent or temporary coordinating body, and, subsequently, periodical coordination meetings, liaison officers, conference links etc. Intelligence-security agencies undertake actions of uncovering and preventing activities of international terrorist organizations and internal entities that pose terrorist threats. Their tasks include timely prediction of terrorist activity conducted from abroad (in cases of international terrorism), identification of domestic and foreign subjects that would support such activity, and uncovering of ways in which such activities would be undertaken with the goal of executing appropriate measures of counter-terrorist defence. “In the field of uncovering internal terrorist activities, the tasks of intelligence-security agencies refer to prevention of: outbreak of armed insurgency, execution of terrorist criminal acts, sabotage, destruction of important economic objects and other property, incitement or inducement of national, racial, and religious hatred, discord and intolerance, organization of bands, groups, organizations or other associations with the purpose of committing acts sanctioned by the national criminal legislation, etc.”

Scheme 1 illustrates the structure of the integral counter-terrorist operational system which is made of leadership commands, staffs, and teams, bodies and institutions for support and security, and units of the Serbian Army, the Ministry of Internal Affairs, and other defence and security forces. Teams can be operational or coordinated; they mostly represent a temporary formation and are brought together for particular counter-terrorist activities. Teams are composed of representatives of commands, units, and staffs of joint institutions delegated with counter-terrorist operations, as well as of members of special forces, trained for operating specific combat systems. “Support and security forces may be political, diplomatic, media, intelligence, counter-intelligence, and security bodies and institutions.”

In principle, the counter-terrorist system consists of the following structural elements:

1. a governing body composed of a command and an analytical-administrative part. The command segment is composed of the highest state officials and operates only if there is a need to do so, while the analytical-administrative segment operates continuously and is made of cadres professionally trained to fight terrorism;
2. departments (sections) of the Ministries of Internal and Foreign Affairs, Defence, Justice, Finance, Information, and Education;
3. special anti-terrorist forces organized under the auspices of ministries in charge of non-armed and armed fight against terrorism.”

Security and intelligence agencies have an accentuated role in the fight against terrorism. “Serbian security agencies are the basic actors of the operational-intelligence activity directed against terrorists.” Operational (covert) methods that they apply in the course of gathering intelligence on terrorists are:
- check-ups;
- covert observation;
- tracking;
- recording;
- covert searches;
- covert interception of electronic messages;
- control of mail;
- covert misinforming; and
- warnings.

In cases when conditions so dictate, security-intelligence agencies, in order to gather data of higher quality, undertake other irregular measures, such as effective actions and operations. Operational knowledge can in many situations present the beginning, the course, and the ending of intelligence-security engagement of a certain agency.

“Intelligence and security agencies are directly leaning on the protection of national security, with the authorization that they can apply special means, measures, and acts to secure sovereignty, integrity, human life, and other vital interests. Those are not only intelligence and counter-intelligence acts, but also acts of securing certain personalities, security protection of certain bodies and institutions, as well as security protection of citizens who work abroad or those with résidence habituelle (temporary residence) outside the home country. Security threats have thus not changed, but their list has become longer than before.” [7]

**Scheme 1. Counter-terrorist defence execution forces [5]**

Fight against terrorism encompasses a series of intelligence activities related to evaluation of information about all whopivotally endanger security, their goals, plans, motives and to briefing the leading state organs, and on the other hand, to thwarting threat bearers’ activities and their incarcerating. A big number of operations include a process of intelligence activity, and they are related to tasks, phases, sub-phases, and individual activities which are all parts of a complex structure of intelligence work.

**3. PRINCIPLES OF THE COUNTER-TERRORIST FIGHT**

Serbia’s counter-terrorist defence recognizes certain principles which are normatively regulated, but also formulated in theory and applied in practice. “They represent ground rules for preparation and mobilization of counter-terrorist forces.” [3]

These are the following principles:

1. The principle of legality. This principle refers to the fact that there exists no possibility of breaching international and domestic laws while protecting vital
state interests from terrorism. That is to say, it is of crucial importance that legal
norms, be those internal or international regulations in accordance with the
Constitution of the Republic of Serbia, are strictly respected during the counter-
terrorist fight.

2. The principle of counter-terrorist prevention. “It encompasses a group of legal
and ordered measures (security, intelligence, educational, financial, judicial, and
others) with whose consistent realization the authorized forces of our country
prevent terrorists from implementing non-deadly and deadly activities against
vital state interests.” [3] This principle can also be marked as the principle of
safeguarding from surprise terrorist acts.

3. The principle of secrecy in work. Security and intelligence agencies of Serbia act
using secret methods and measures, with which they wish to uncover equally
coevert activities of members of terrorist organizations. The results of these
agencies in Serbia are available to the general public only if they have
successfully fulfilled their tasks, that is, if they have disenabled the terrorist
activity (by incarcerating some members of terrorist organizations).

4. The principle of comprehensiveness. In their work, the counter-terrorist subjects
of Serbia have the duty of encompassing the entire structure of terrorist
organizations, including finances, collaborators and other actors, but should, in
their comprehensiveness, have as the focal objective the most dangerous part of
the terrorist structural elements or their most dangerous activities.

5. The centralization principle. “This principle implies that the President of Serbia,
as well as competent ministries and authorized organs within the decision-making
system, make the decisions and issue orders, and that subordinate organs and
forces execute them without question.” [3]

6. The offensive principle. “It is mirrored in a continuous, studious, thoughtful
aggressive activity of the counter-terrorist forces with the goal of hindering,
discrediting, and disenabling terrorists in their efforts to implement planned
activities – under all circumstances, at all times, and at all places. The basic
bearers of this principle are the security and intelligence agencies of our country;
however, it must be consistently upheld by all other sides, including those that do
not have national defence as the primary objective but rather only one of their
basic principles.” [3]

7. The principle of self-criticism. This principle is also very important, because if a
certain terrorist activity causes some damage to Serbia’s vital interests, and this is
not perceived as a professional omission, it may so happen that terrorists will
pursue the realization of their activity in a more ruthless and aggressive manner.
That is why it is necessary for the forces within the defence system to admit
certain mistakes (as they might have been unable to uncover and prevent a certain
danger). [3]

By upholding these principles, Serbia can influence the success of its defence, and vice
versa. Therefore, the implementation of these principles contributes to the country’s
successful defence from terrorism, and much attention has to be paid to them.

4. THE SECURITY-INTELLIGENCE AGENCY (BIA) IN
CONFRONTING CONTEMPORARY TERRORISM

The Security-Intelligence Agency originated as a successor of the State Security
Department (RDB) and was formed by the Law on Security-Intelligence Agency that
came into force on February 27th 2002 in accordance with the general system reform. It represents a separate organization of the Government of the Republic of Serbia with a status of a legal entity.

BIA’s purview includes:

1. Counter-intelligence,
2. Intelligence, and
3. Other security duties. [8]

Counter-intelligence activities that fall within BIA’s jurisdiction include gathering, analysis, processing, and evaluation of data about activities of foreign intelligence agencies and certain individuals, groups, and organizations present on the Republic of Serbia’s territory and aimed against its security.

Intelligence activities of BIA can briefly be defined as gathering, analysis, processing, and evaluation of data of political, economic, security, and military nature, at home and abroad, which refer to the existence of intentions to secretly act against Serbia’s security.

Other security assignments refer to “suppression of activities directed at organized crime, of criminal acts with elements of foreign, internal and international terrorism, as well as of the most severe forms of criminal acts against humanity and international law and against the constitutionally-established order.” [9]

Since 2011 BIA has also had a separate organizational unit – the Bureau for confronting terrorism and international organized crime. This Bureau is in charge of fighting internal and international terrorism, organized crime, criminal acts with foreign elements, and the most severe forms of criminal acts against humanity and other goods protected by international law. Also, the Bureau coordinates and directs the work of organizational units that are partly, among other things, in charge of prevention and fight against terrorism.

5. SPECIAL UNITS OF THE MINISTRY OF INTERNAL AFFAIRS

The Ministry of Internal Affairs of the Republic of Serbia (MUP) also has an important role in the fight against terrorism, primarily because of its special units.

MUP’s Special Anti-terrorist Unit (SAJ) is a modern, highly professional anti-terrorist police unit, narrowly specialized and equipped with special high-end gear, meant to execute complex and highly risky tasks of providing security and protection to the Republic of Serbia and its citizenry. This refers, in the first instance, to fight against terrorism on the tactical level, as well as to offering assistance to the Criminal Police Bureau (UKP) and other organizational units of MUP with arrests of dangerous criminals and criminal bands, especially when armed resistance is expected to occur. [10]

The Counter-terrorist Unit (PTJ) plans, organizes, and executes the most complex security tasks in cases of outbreaks of terrorism. Besides, it is in charge of documenting, following, comparing, and predicting occurrences and events that contain elements of internal and international terrorism, of uncovering criminal acts of terrorism, of securing material evidence, and of arresting perpetrators.

The Gendarmerie is an organizational unit of the Police Directorate that plans, organizes, and executes the most complex security tasks over the entire territory of the Republic of Serbia in cases in which criminal acts of terrorism are detected and incarceration of perpetrators is necessary; in addition, it plans, organizes, and executes preventive anti-terrorist activities and direct interventions aiming to eliminate terrorist groups and destroy organized terrorist networks.
It is clear that the Republic of Serbia has established special units within its police forces with the purpose of executing particular tasks that require specific knowledge and skills, training and equipment which regular forces do not possess to such an extent. These special units are primarily intended to take part in the fight against terrorism.

6. CONCLUSION

The security-intelligence activity in Serbia has deep roots and is founded upon a rich tradition. However, that tradition has its bad sides, because one of its segments is an influence exercised upon internal political issues. Intelligence-security activity is in current conditions represented by a sphere of competences, rights and obligations of intelligence agencies and other institutions within the security-intelligence state system, determined and structured by legal regulations and political decisions. As agents of national security and carriers of security functions, the Military-Intelligence Agency (VOA), the Military-Security Agency (VBA), and the Security-Intelligence Agency (BIA) are integral subjects of the security-intelligence system of Serbia, which is one of the sub-systems within the national system of security. The activity of these agencies is directed against the most perfidious forms of crime, such as organized, financial, high-tech, economic and other types of crime that endanger the security of state and society.

LITERATURE

[2] Zakon o osnovama uredenja sluţbi bezbednosti Republike Srbije, Sluţbeni glasnik RS no. 116/07, 72/12
IMPACT ON SHIFT HEALTH AND FREQUENCY OF INJURY WORKERS

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Abstract: This survey in special hospital in Krapinske Toplice analyzed the work of employees in shifts (dayshift, afternoon and night), and how such work affects their physical and mental health, as well as their social and family life. The results will be useful information for the implementation of certain changes in the health system.

Key words: shift work, hospital, health care, employees

1. INTRODUCTION

The paper discusses the negative effects of shifting and night work at healthcare workers who work in shifts: Morning, Afternoon, Night. A survey was carried out among workers confirming the damage caused by night and night work. The problems that are related to the fieldwork are:

- sleep problems,
- gastrointestinal and cardiovascular diseases, cancer
- problems with reproductive functions of women and
- poorer mental health.

Significant predictors of tolerance for field work are:

- age,
- sex,
- Flexibility of sleep (that the worker goes every day about at the same time on sleep, min 8 hours of sleep)
- family situation,
- sleep hygiene
- healthy diet.

1.1. The company as a work unit

The Krapinske Toplice Hospital was established by the Government of the Republic of Croatia no. 7374/52 of 28 June 1952 as a bathing spa. The status of the hospitals was acquired on 5th of November 1962 and the status of the Special Hospital for Medical Rehabilitation was acquired in 1994 in accordance with the provisions of the Health Care Act (OG 73/93). There are 444 people employed in healthcare. The research was conducted on the experiences of workers who work in shifts and who work at night.
Surveys conducted among workers point to the bad influence of day and night work on their health, social and family life. The hospital performs the following activities:

- Medical rehabilitation and treatment of neurological, cardiovascular, orthopedic - trachopedic - traumatized, rheumatic and internistic adult and pediatric patients.
- Provision of polyclinic - specialist services from Hospitals.
- Provision of Hospital Hospitals through Hospital Pharmacy.
- Transport of patients.
- Performing primary education and pre-school education for children with developmental difficulties and other children on treatment and medical rehabilitation.
- Providing consumers with potable water from the thermal water supply.

2. METHODOLOGY OF RESEARCH

2.1. Analysis of research problem

Workers in the healthcare work night shifts up to 2 times a week, and according to schedule, shifts are made to ensure that the worker does not work for a night shift longer than one week. The problem is that there are not enough employees in the hospital to work in the morning, afternoon, and night shift.

2.2. Objective of research

The aim of this research and survey conducted among workers is to analyze how work shifting and working at night affects workers on their physical and mental health and their social and family life.

2.3. Hypothesis

Modal and night work is detrimental to the worker's health because it damages his social and family life, and the productivity of worker work is greatly reduced. The frequency of injuries to workers is much higher due to reduced concentration resulting from fatigue and deconcentration. The biorhythm of a worker is, of course, disturbed, and the recovery is long-lasting and often incomplete for as long as the work is done.

2.4. Methods

The methods underlying this research are the method of survey conducted among workers and the statistical method of processing data on injuries at work.

1. Method of the survey conducted among employees of different departments and was a descriptive analytical. It was used a written questionnaire as an instrument of survey containing questions with suggested answers.

2. Statistical methods of processing the data on the accidents at work that have occurred in these working environments and on the means of work in the last two years. On the data that we have given heritage protection at work in the company.
2.5. Sample

The survey was conducted on a sample of 42 employees at a different department of nurses from the neurological department, medical technicians, labs and people working at the center), and injury analysis, 13, occurred at the hospital level in the past year. Surveyed workers are between the ages of 25 and 50. They are healthy and do not have any health problems to do business that is proven by insight into their person's data.

3. RESEARCH RESULTS

3.1. The results of the research were obtained and analyzed by the survey method

1. What do you think about the shift and night work from your point of view?
A) night and shift work greatly deplete workers
B) endangers his physical and psychological health
C) Bad influence on his social and family life
D) no adverse effect on the worker

Graph 1. Answering the questionnaire about shift work

All respondents indicate that the shift work is detrimental and affects the health of workers.

2. After the night shift as you put, you should return to normal daily rhythm of the night?
 a) 2 days
 b) 3 days
 c) 4 days
 d) a single day

Figure 2: Results to return to the normal rhythm of life and work
Most workers gave similar answers but overall looking at the recovery time lasts between 2-4 days, with the pushing-time workers do their other shift. Finally, the recovery in the real sense of it never happens because after a certain shift nurses has a day off, and then go to the morning shift or the like. Workers at the central work all week the same shift and they also do not have sufficient time to recover.

3. How do you feel after a night shift?
   a) Bad, tired
   b) neispavano
   c) exhausted
   d) I do not feel tired

Of the surveyed 21 workers, 10 responded to a) feel bad, tired, 2 responded to the answer under b) feeling confused, 8 responded to the answer under c) feeling exhausted until none of the respondents The worker did not answer the answer offered under d) that he does not feel tired.

![Graph 3: Worker feeling after night shift](image)

Most say she does not feel well after the night shift because she is exhausting and exhausting. All the answers were in the negative sense and there was no respondent who had spoken to feel good after the night shift.

4. How do shift and night work affect your relationships with other people?
   a) Very bad
   b) nervousness, which is the result of night work, exacerbates relationships
   c) does not affect people's relationships
   d) Affect good relations with people

![Graph 4: Influence of night work on interpersonal relationships](image)

Night work deteriorating relations between people. Due to fatigue and sleep deprivation need for sleep is expressed and causes transient depressed when they can not be included in the usual and normal social life in their neighborhood. Almost all completely neglect their social activities such as sports and religious. Were withdrawn from social life, ranging from job-flat.
5. Have you had any health consequences due to shift work and work at night?
   a) obesity 
   b) Insomnia 
   c) malnutrition 
   d) has no health effects

   ![Graph 5: Effects of Shifting](image)

The problem of obesity and insomnia occurs not only in night shifts but also in others. In some subjects, the problem of obesity is very pronounced, and none of them confirms that it is prone to excessive intake of food into the body.

6. In your opinion, how do you change the shift and work at night affect your health?
   a) generally affects the health poorly 
   b) it has a bad effect because it disturbs biorhythm 
   c) does not affect health 
   d) it has a good effect on health

   ![Graph 6: Influence of weekly change of shifts on worker health](image)

Most responded negatively to the question posed, because a weekly change of shifts is constantly disturbing the worker's biorhythm, ie the rhythm of wakefulness and sleep. Even after the end of the night shift, workers are still not returning to their usual day-to-night rhythm because they still work out of standard working hours.

7. In your opinion, how much time or pause is needed in the night shift to maintain a certain level of concentration and efficiency?
   a) a half-hour break is enough 
   b) every 2 hours break of 15 minutes 
   c) 1 hour break 
   d) without pauses

Of the surveyed 21 workers, 5 responded to a) a half hour break was sufficient, 12 responses were answered under b) every 2 hours 15 minutes break, 4 workers responded under c) 1 hour break and no Gave the answer under d) without pauses.
Most of the workers responded that they would be required every 2 hours break of 15 minutes. The explanation of this response is that one break when working at night is not enough to maintain vigilance. Most of the workers says the best sustain awake by drinking coffee and smoking.

4. CONCLUSION

- From this study we can conclude the following:
  - Shift work is harmful to mental and physical health of workers
  - Increases of stress, nervous conditions, depressive states with workers
  - Workers of chronic fatigue and sleep deprivation
  - about coming to disruption of their social life
  - Reduced the effects of shift work
  - the most common injury occurred on the night shift

It is necessary to continuously monitor the consequences of the harmful effects of shift work on workers’ health and on the frequency of injuries at work, as well as the consequences that this work contributes. It should take measures to mitigate the harmful effects of shift work. From the survey conducted on a small sample of workers undoubtedly proving detrimental effect of shift work on workers' health and productivity. It is worth noting that there is the best system of organization change that can be applied for each position. Each system should be adapted to the specific operational requirements and the personal and social factors workers.

REFERENCES

Summary: Security as a phenomenon and one of the basic functions of the state is very complex for the study and research throughout the history. The state and the institutions can act and respond to sources of compromising, they need skills, competence and knowledge for proper actions to remove the threat, or compromising. As with the above components as well as at other higher education institutions in the Republic of Croatia there is a separate program that allowed students to acquire knowledge that enables operation in security - defense public sector, this work covered by the individual components. Analyzed the implemented level of courses dealing with security - defense. Results of research will enable more comprehensive discussion and debate about the need for these types of studies in Croatia.

Keywords: council, high school, safety, curriculum, education.

1. INTRODUCTION

The work of National Curriculum Security component of the council of Croatian institutions of higher professional education in the republic of Croatia is an analysis of the contents of curricula and research programs explored in this academic 2016/2017. The Council of Polytechnics and High Schools in the Republic of Croatia has 39 members attending over 40,000 students. There are 169 curricula in the undergraduate study, while there are 78 curricula in a specialist graduate study program. The purpose of the analysis is to determine the attendance of the course dealing with security issues at all, or individual parts thereof, or in the units of the literature of the courses. The curricula and curricula have been analyzed for this study: the High Police School in Zagreb, the High School of Security in Zagreb, the VERN University of Zagreb, and the Karlovac University of Applied Sciences.

2. NATIONAL SECURITY STRATEGY

The 2002 national security strategy is still outdated. This year, the process of drafting and adopting a new strategy was launched. Although efforts have been made in the last 20 years to set up national defense and security studies, there are no major moves towards that. At the Faculty of Political Science in Zagreb in 1975, a study of the general defense and social self-protection was established, which was abolished in 1992. Such and similar types of studies have existed in all other countries in the Republic of Croatia.
3. METHODOLOGY OF RESEARCH

3.1. Problem

Has the Republic of Croatia concerned with education in the security and defense area since its independence has paid sufficient attention, especially in the area of higher education.

3.2. Objective

Point to the security scattering and disorder of the course, and encourage the company to think about introducing interdisciplinary safety studies. Today there is no separate higher education institution for education in this area. "Security is one of the fundamental phenomena of human society at all stages of its development. Whether it is the security of an individual, group, state or group of states, it is always an effort to ensure values and states that are considered to be of vital interest "[1]. Research results in EU member states point to the fact that besides war, there are other forms of endangerment: endangering work and living environment, elemental disasters, technical accidents, crime and corruption, Security is no longer a target of a state that is achieved by a combination of military and diplomatic means, and security in contemporary perception is viewed as a determinant of survival as a condition that creates relationships between individuals, societies and the state [2].

3.3. Hypothesis

Security and Defense in Curriculum Programs Component of the council of Croatian institutions of higher professional education is not represented by the proportional needs of society.

3.4. Research methodology

This research will use the method of analyzing the contents of the syllabus components of their web pages. Council of Croatian institutions of higher professional education has 40 members. Since National Security consists of several areas of the thematic unit of analysis that we will process:
1. National security in the name of the course - the syntactic unit as a college that its content covers the whole area of national security
2. Subsections of national security in the name of the course - syntactic unit as a course that partially covers the area of nationality security
3rd courses with other titles - a thematic unit in its content includes the concept of national security or one of the national subdivisions security.

4. RESEARCH RESULTS

Below you will find an overview of the results of the research conducted in the constituents of the Croatian institutions of higher professional education.
4.1. High Police School

In this school there is a professional criminology study that lasts three years and is worth 180 ECTS credits and a specialist graduate professional criminology study lasting two years and worth 120 ECTS credits. The following results were obtained by analyzing curricula and programs.

Table 1. Showing results

<table>
<thead>
<tr>
<th>Police college</th>
<th>1. National Security in Title of the course</th>
<th>2. subsections National security in the title of the course</th>
<th>3. national Safety as a part Content of the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist graduate professional study criminology</td>
<td>no</td>
<td>Risk management</td>
<td>Intelligence security activity And Services, Models of Intelligence Services in World, Migration Criminality, Fire, Explosion and Terrorism, Computer Security, Methodology of Security Issues Research</td>
</tr>
</tbody>
</table>

Intelligence security activity And Services, Models of Intelligence Services in World, Migration Criminality, Fire, Explosion and Terrorism, Computer Security, Methodology of Security Issues Research.

4.2. College of occupational safety and health

The analysis shows that there is only a Collegium - International and EU Security Law as a subdivision, but there are 7 courses in undergraduate undergraduate studies and 9 courses in Specialist Diploma Professional Studies that we can present in the third unit of analysis. Certain courses can be classified as ecological and some in the social security area, but since this High School specializes in the field of occupational safety, all of these courses are primarily concerned with this area and do not include national security or any national security subsection.
### Table 2. Showing results

<table>
<thead>
<tr>
<th>College of occupational safety and health</th>
<th>1. national Security in Title of the course</th>
<th>2. subsections of national Security in Title of the course</th>
<th>3. National security as part of the course content</th>
</tr>
</thead>
</table>

### 4.3. VERN University of Applied Sciences

### Table 3. Showing results

<table>
<thead>
<tr>
<th>VERN University of Applied Sciences</th>
<th>1. NS in the course name</th>
<th>2. subsections NS in the course name</th>
<th>3. National security As part of the course content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Undergraduate study</td>
<td>-</td>
<td>-</td>
<td>a) Format multimedia content</td>
</tr>
<tr>
<td>a) Entrepreneurial Economics</td>
<td>b) Film and television design</td>
<td></td>
<td>b) Psychology of Media and Communication Content</td>
</tr>
<tr>
<td>c) Journalism</td>
<td></td>
<td></td>
<td>c) Contemporary social systems</td>
</tr>
<tr>
<td>Specialist graduate professional study</td>
<td></td>
<td></td>
<td>a) Security of business information systems</td>
</tr>
<tr>
<td>a) IT management</td>
<td>b) Entrepreneurial management</td>
<td></td>
<td>b) International environment and business law</td>
</tr>
<tr>
<td>c) Human Potentials Management</td>
<td></td>
<td></td>
<td>c) Stress management and psychosocial risks.</td>
</tr>
</tbody>
</table>
There are 7 undergraduate professional studies and 6 specialist graduate professional studies at the VERN University. In the course of the undergraduate professional studies, three courses were found that can be included in the analysis as a course in the field of national security. When analyzing all 255 courses, how much is being done at all undergraduate studies, a certain number of them contain elements of economic security. Since no college has a national security name, it means that neither economic security can be in the first nor the second unit of analysis, and that is not the primary interest of this research. By analyzing the course on a specialist graduate professional study (132 courses), only three courses were found (see Table 3) which can be analyzed as a third unit of analysis. These courses study the threat of business security by developing business development strategies. All these courses are not just about economic security, they are dealing with specific areas within the economy.

4.4. Karlovac University of Applied Sciences

At the Karlovac University of Applied Sciences there are 7 undergraduate professional studies and 3 specialist graduate professional studies. The analysis was done only on those studies where it was assumed that some courses related to this research could be found.

<table>
<thead>
<tr>
<th>Karlovac University of Applied Sciences</th>
<th>1. NS in the course name</th>
<th>2. subsections NS in the course name</th>
<th>3. National security As part of the course content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Undergraduate study________</td>
<td>-</td>
<td>-</td>
<td>a) Hunting weapons, Hunting of game, Hunting ethics, Legal regulations for nature protection, Environmental protection, Editing of hunting grounds</td>
</tr>
<tr>
<td>a) Hunting and nature protection</td>
<td></td>
<td></td>
<td>b) Safety of Milk and Milk Products, Use of Dairy Chemicals, Food Safety, Legislative safety regulations</td>
</tr>
<tr>
<td>b) Food (courses - Dairy and Beer)</td>
<td>-</td>
<td></td>
<td>c) Tourism and the Environment, Foreign Trade</td>
</tr>
<tr>
<td>c) Business department - hospitality study</td>
<td>-</td>
<td></td>
<td>d) Ecology and Protection, Traffic and Transportation Protection, Chemical and Biological Hazards, Fire and Explosion Protection, Industrial Safety, Safety in Process Processes</td>
</tr>
<tr>
<td>d) Safety and Protection Study (Occupational Safety and Fire Protection)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialist graduate Professional safety and protection study</td>
<td>-</td>
<td>Planning and programmin g security</td>
<td>Civil Protection, Private Security, Security and Protection Basics of Explosive Substances, Protection and Rescue.</td>
</tr>
</tbody>
</table>
Only studies in the field of Security and Protection are available in a specialist and specialist course that can be classified into the unit of Analysis Unit 2 (national security in the title of the course). All the studies at the Karlovac University of Applied Sciences have found certain courses in which specific topics are being studied from security.

5. CONCLUSION

From the analysis it can be seen that the education policy of the Republic of Croatia over the last 25 years with regard to national security is viewed from the academic aspect of education inadequate to the needs of society and unparalleled with many countries in the environment.

The Most Significant Security Document - The National Security Strategy of the Republic of Croatia does not follow the modern approach to creating the necessary staff from this area, The responsible state institutions should be responsible for investigating this problem and enabling the education of the required staff either as an independent study or in existing higher education institutions as a new study.

LITERATURE

THE OPERATING OF CENTRES FOR SOCIAL WORK
DURING NATURAL DISASTERS WITHIN THE
PROTECTION AND RESCUE SYSTEM

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Abstract: The operating of a centre for social work in a crisis caused by a natural disaster is specified through a number of various, specific activities whose framework is established in a protection and rescue system within each community. The flood experience from 2014 showed a number of weaknesses in the protection system and huge differences in the organization and response of these institutions to the new situation. The need for a clear definition of the role and responsibility of the centre for social work in emergency situations caused by natural catastrophes (natural disasters) resulted in a manual that represents a simple and practical overview of the framework for operating of centres for social work, which provides basic work instructions to the management and employees in these institutions. This paper provides an overview of basic activities that need to be implemented by the management of a centre for social work and all employees within the organization and the community in order to meet the objectives of protection and rescue in emergency situations and the goals of social protection.

Key words: natural disasters, protection and rescue system, crisis management, centre for social work

1. INTRODUCTION

A specific attribute of modern societies is the constant existence of events/processes or conditions that disturb suddenly and unexpectedly the usual routine, cause damage, stress and insecurity and destroy individuals, groups or the society. All of them can be grouped as crises, causing emergency situations and they require a reaction of the society due to their negative impact. Various scientific and social fields (economy, history, medicine, psychology, ecology…) are exploring crises, which leads to differing understanding of the meaning of this concept. Töpter defines crisis as an upcoming risk that may be recognized and valued beforehand but it is possible not to notice it at all and it can occur suddenly [14]. “A crisis means a breakage, a temporary severe situation
in every natural, thoughtful and social process” [12, pg. 12]. In more recent definitions, authors point out some key indicators, including the severity of threat to basic values and standards of the social system, regardless of the type of threat (ecological, economic, state conflicts, wars, explosions, natural disasters); the existence of time pressure and the need to make critical decisions. In addition to negative effects, when defining crisis, it is also necessary to consider the possibility of crisis that moves things in a positive direction. “A crisis is a turning point, it is not necessarily loaded with an unfavourable negativity but it is rather characterized with a certain level of risk and insecurity” [7, pg. 480]. Each crisis disturbs the usual processes in specific social systems. The causes of crises are dangers that result or come from the system itself (individuals, family, organization) or from the environment of the system on which the organization, system or individual does not have much impact. Causes from the environment include global changes, policy, economy, development of science, technology, social changes, natural disasters and accidents, etc. Internal causes lie in the individual itself, the family, organization and these are most commonly inappropriate qualification, weak organization, unrealist goals, weak communication, bad inter-human relations, inappropriate work conditions, etc. Most researchers of crises agree that present crises cannot be explained mono causally or by listing several easily recognizable factors. Thus, causes of crises may be extremely wide or, as J. Welsh claims, each crisis is a story for itself. Nowadays, exploration of causes of crises is done in an inter-disciplinary manner in such a way that the origin of each crisis is being explored and analyzed in a comprehensive manner as well as mutual impact of varying factors on its development.

Management in situations of crisis or crisis management bears a key responsibility for prevention of crisis, operating of the organization during crisis and in the process of elimination of consequences of crisis. This is the reason why particular attention is being paid to this issue and various strategies are being developed to support the management in managing crises. In the recent years global climate changes caused a number of natural disasters, which are determined as catastrophes due to their extent and intensity because they jeopardize the health and life of men, material goods and the environment. An emergency organized action of several actors and the community as a whole is required to prevent or eliminate these catastrophes. During the last decade, most part of Bosnia and Herzegovina and the Republic of Srpska have been exposed several times to floods, landslides, heavy snow falls and droughts that endangered its population, particularly those categories that require specific measures of protection even under the ordinary circumstances. Consequences of natural disasters are present for years influencing significantly numerous social relations and processes within the society. Many families lost their goods and sources for provision of social security while communities were facing multiple needs that resulted in other issues. For example, as a result of landslides whole areas had to be moved out; the population has been moved to a safer area, which requires material resources but also a range of social measures to ensure the integration of migrants into the new environment. This indicates the importance of interrelation of various causes of disaster and their consequences in specific fields of life. Migrations that are happening nowadays on the global level bear all these challenges and result in interdependence and harmonized systematic acting in policy, economy, social, cultural, technological and medical field, etc. An integral and necessary part of understanding and defining a crisis is the need for acting; that is the need for an organized social action in order to prevent, reduce and suppress the crisis. Experiences during the floods in 2014 – the most mass and largest natural disaster that hit Bosnia and Herzegovina in the recent years – showed that already developed and
established systems of protection and rescue did not have appropriate and expected responses to a number of situations and that many urgent population needs were not met in a timely manner. Though the system of protection and rescue has its own forces that operate in accordance with their missions and existing legal regulations, coordination among them has not been on the necessary level and many actors of these forces – endangered with natural disaster themselves – did not succeed to respond to their tasks in an appropriate way. The operating of centers for social work in the system of protection and rescue of local communities is determined within the Law on Protection and Rescue in Emergency Situations [16]. Centres for social work are legal bodies responsible for establishment of their own organization for conduction of activities, for provision of training and for preparation for operating in cases of natural disasters. Readiness and capability of centres for social work to fulfil this obligation is very modest and experiences showed that these organizations did not have protection and rescue plans, they did not have established, trained and equipped teams for operating in emergency situations and they did not have a clear understanding of their role and tasks for which they were responsible and this slowed them down significantly and disturbed in fulfilling their role (reports and announcements of employees on professional meetings). In order to eliminate this form of behaviour and prevent its negative consequences, in Bosnia and Herzegovina activities have been developed aimed at provision of professional support to these institutions in order to increase their professional capacities, to prepare and educate for a systematic approach in operating in emergency situations. These activities are being implemented through steps defined and established on principles of strategic planning and management in situations of crisis (crisis management). Activities include: analysis of situation and experiences, identification of various practices and learning on good practice examples, definition of obligations and “systematic positioning in the field of normative, institutional and professional dimension for a planned operating in emergency situations” in the practical Handbook for operating of centres for social work in emergency situations, support to pilot centres that had the severest experiences in the recent floods in preparing and educating for possible emergency situations, increasing the management capacities in all organizations regarding understanding crisis management and spreading the experiences and good practice throughout the region.

2. CRISIS MANAGEMENT

Modern management is facing on a daily basis, on all levels and types of activity very complex, unpredictable and sudden situations that require quick, responsible, deliberate and, often, uncompromising reaction. In practice and as part of general management, a new field has been developed that predicts possible situations of crisis and determines optimal responses in times of crisis. In the frame of crisis management, internal specialization is being developed that is produced by the type, form and severity of crisis, which requires the inclusion of competent experts, educated and trained for crisis management in the field they work in. Crisis management is increasingly becoming a separate – probably not desired – but, without any doubt, a required segment of general management, that needs to provide optimal solutions in situations of crisis. Crisis management is a process of managing a crisis. It includes strategies, processes and measures that will be implemented in order to prevent the outbreak of a crisis and to look at its consequences. “It is a process of determining and planning what and how to respond to a crisis, as well as the procedures and plans in case a crisis occurs” [11, pg. 96]. The essence of crisis management means readiness and awareness of a manager that
there is a possibility of various types of crises and that they need to work towards elimination of numerous risks and insecurities in order to ensure a higher level of control in situations of crisis and reduce negative effects of incidents and a quick return to the regular condition [9]. Crisis management is a complex human activity that differs significantly from management in regular situations. It is usually being performed in conditions of organizational chaos, under the pressure of numerous media, under stressful circumstances and lack of precise information [3]. Differences can be seen in the operating of the organization itself, the system, organizational structure, management of human resources, information and their use, goals of management as well as in the context of management itself where several systems operate simultaneously and their work needs to be uniquely managed and coordinated with all the parts of the system having differing structures. However, their operations must be oriented towards a unique goal where decisions are being made based on scanty, variable and insufficient information with limited resources and where everybody stands under huge pressure. The key task of crisis management is development of an environment in the business system that ensures a quick and oriented (coordinated) action of all system levels. In order to be able to provide this, crisis management defines the situation, makes an analysis of all segments of the situation and its consequences, provides a diagnosis and implements measures to overcome the crisis. Precondition for operating of crisis management is the gathering of various experts – depending on a specific situation of crisis – who develop strategies and plans for realization of strategies. Management operates on all levels in situations of crisis. On the first level (the operational level), systems and resources are being developed that have a direct impact on the event. On the tactical level, the entire response to the event is being managed through coordination of activities of various bodies and agencies that react on the event as part of their mandate, anticipate the need for resources and coordinate activities to inform the public. On the strategic level, the event is being managed through analysis and exploration of its long-term implications, definition of long-term goals and definition of priorities. The operating on the strategic level determines the direction of operating on the operational level. Management in situations of crisis has its recognizable characteristics. It needs to be adaptive; in other words, it needs to possess the possibility to change the structure and relation towards the existing situation and course of the event. It also needs to be flexible, that is operational measures should be the expression of a direct reaction to a specific emergency situation and not the expression of strategic measures at any cost. Partnership and close cooperation among all actors and on all levels ensures a linking into an appropriate form suitable to the needs of all necessary resources. Crisis management needs to respect the life cycle of a crisis and to respond in accordance to that life cycle. That is the reason why crisis management includes a range of specific activities that are developed in detail for each specific situation. Most often, authors classify this process into four phases. These are mitigation (alleviation), preparedness, response and recovery. In the mitigation phase, crisis management attempts to prevent that threats become a general catastrophe or tries to reduce the effects of already developed catastrophes. The mitigation phase differs from other phases because it focuses on long-term measures by reducing or eliminating risk. Implementation of mitigation strategies may be considered part of the recovery process if it is applied after the occurrence of the catastrophe. Mitigation includes structural and non-structural measures implemented to limit the effects of the disaster. Structural measures use technological solutions such as anti-flood channels and dams, appropriate constructions in order to be resistant to disasters. Non-structural measures include legislation, planning
of land use (e.g. identification of unimportant areas of land, such as parks to be used as flood zones) and insurance. Mitigation is the best cost-efficient method to reduce the effects of threats, but it is not always suitable. Mitigation includes the ensuring of regulations that elaborate evacuation, sanctions against those who refuse to respect regulations (such as mandatory evacuations) and communication of potential risks to the public. In the preparation phase, the organization, equipment and procedure are being prepared to be used after the occurrence of a disaster. This phase is also known as the planning phase because it includes the most important preparation activity, which is development of action plans for the moment when the emergency situation occurs. Action plans describe activities that need to be implemented during the crisis by various sectors, departments, managers and employees. An action plan includes policy, plans and procedures of operating [2]. In addition, regular measures of preparedness include:

- Elaboration of communication plans with easily understandable terminology and methods;
- Appropriate up keeping and training of departments for management in situation of crisis;
- Development and practicing of methods for urgent warning of population and methods of intervention (operating of shelters and functioning of equipment, evacuation plans);
- Storage, inventory and maintenance of stocks and equipment for situations of crisis;
- Development of organizations of trained volunteers among civil population.

In the frame of operating or responding phase, mobilization of urgent resources is being done (services and persons) to first respond in the field (firemen, police, emergency ambulance, military) and mobilization of secondary resources to provide support (services that organize the admission of evacuated persons, care, family reunions ...). This phase begins with search and rescue and quickly transforms into meeting the needs of affected population.

The recovery phase begins after the direct threat to human lives ceased. The goal is to revert the affected area or organization to the previous state. In this phase, decisions are being made that refer to urgent needs. Actions are being organized with the goal to rebuild destroyed capacities, repair infrastructure, implement sanitary and epidemiological measures, reemployment is being done and production and operating of services is recovered.

All phases of crisis management process are interlinked, each is the result of the previous phase and defines requirements for the next one while many activities in specific phases overlap. Crisis management is obliged to coordinate all phases and all activities, to link them together and to link a range of operational segments of various systems, depending on the level of the crisis.

3. OPERATING OF CENTRES FOR SOCIAL WORK IN THE PREPAREDNESS PHASE (PLANNING)

Centre for social work is an institution of social protection founded by the local self-administration unit to perform social protection duties. In Bosnia and Herzegovina its operating in situations of crises caused by natural disasters is determined through existing legal regulations and basic principles of social work and social protection. The Law on Protection and Rescue itself [16] does not recognize the specificity of operating
of these services and defines basically the responsibilities of all legal subjects. Laws on social protection (Law on Social Protection of the Republic of Srpska (RS) and Law on basic social protection, protection of civil war victims and families with children of the Federation of Bosnia and Herzegovina (FBH)) determine the operating of social protection institutions, which is in analogy being applied to emergency situations.

The preparedness phase is being realized under regular conditions, much before the occurrence of an emergency situation, without an expressed threat from a natural disaster and represents a possible response for cases of natural disasters which is possible based on previous experiences and noticeable natural events and that will result in severe and huge negative consequences for people and material goods. During this phase, all actors of forces for protection and rescue implement specific preventative activities. According to the Law on Protection and Rescue (article 13) these include:

- Elaboration of evaluation of threat from possible risks of dangers,
- Elaboration of protection and rescue plans,
- Preparation of spaces and buildings for the purpose of protection and rescue,
- Establishment of a protection and rescue system, and
- Engagement of persons and provision of material and other sources for fulfillment of planned tasks.

In addition to regular activities, center for social work prepares and implements preventative activities in order to reduce risks from potential natural disasters and to increase its resistance towards them. Key activities to be implemented by a center for social work include:

- “Assessment of situation and risk;
- Elaboration of lists for priority operating;
- Elaboration of action plans;
- Elaboration of communication plans;
- Establishment, up keeping and training of teams (services) and individuals for managing in emergency situations;
- Development and training for urgent interventions;
- Purchase of equipment and other sources for operating in emergency situations, their maintenance and inventoring;
- Development of links and relations with other subjects of protection and rescue;
- Development of personal readiness of employees and beneficiaries” [15, pg. 40].

Assessment of risk on the local community level is done by headquarters for emergency situations who prepare extensive studies on the risks that may jeopardize the territory or part of the territory. Centre’s management makes use of these studies and assesses the risks that endanger the organization and risks that may endanger beneficiaries by comparing on which geographical area specific risks are being present and whether existing social care beneficiaries live on that area. Activities for assessment of risk include the review of risk studies, review of protection plans, analysis of experiences and history of natural disasters, identification of type of natural risks, assessment of extreme events in a specific time frame on a specific locality, of specific strength and duration, where and how a threat may develop, what is the impact of risk, what damages it may
provoke and how long could it last. The final activity in risk assessment is geo-mapping of risks. In order to develop an operating plan and in addition to risk assessment, a center for social work must perform an analysis of situation, which includes:

- Analysis of organizational situation (locality, quality of building, documentation and maintenance, equipment, human resources within the center (employees), organization and organizational culture and other resources (volunteers, associates, potential localities ...),
- Analysis of beneficiaries (identification of most jeopardized groups and individuals such as one-member families, older married couples, elderly, families with people with severe disability, single-parent families, children and youth without parental care, children and young people with disabilities, children and families under the risk of separation, elderly and weak persons in social protection institutions, illness affected persons, multiple-children families, poor families),
- Graphic mapping of the most jeopardized,
- Identification of social, cultural and significant valuable factors within the community (solidarity, civil society organizations, traditional actions ...),
- Analysis of existing protection and rescue forces, understanding of individuals roles and ways of coordinating operations,
- Analysis of potential resources (possible locations for organization, archive, documentation, equipment, placement of beneficiaries and organization of service provision),
- Analysis of status and position of the organization in relation to risks (impact of the risk on the organization and identification of alternatives in relation to risks),
- Analysis of status and position of beneficiaries in relation to risks (comparison of risks and areas with risks with localities of the most jeopardized beneficiaries, analysis of alternatives for beneficiaries and identification of priorities for operating).

Analysis of situation will enable to create a list of priority beneficiaries with the highest level of needs and highest level of jeopardy in case of assessed risk and relevant data for planning of measures and activities for protection and rescue, planning of necessary resources and equipment, identification of new resources that can be used and formation of staff to operate in emergency situations [15]. Provisions of the Law on Protection and Rescue bind all legal subjects to develop plans of protection and rescue. Each center needs to have its own plan and to monitor and update regularly changes in the plan. Crisis management or the team that is established by the crisis management to work on planning defines the plan by applying the methodology of strategic and operational planning and identifies - based on analysis of situation and risk assessment – goals, identifies key groups of activities for achievement of goals and allocates resources in order to implement activities. In the planning phase, upon the definition of a plan, assumptions are being created for its implementation. This includes provision of necessary materials, equipment, operating instruments, ensuring budgetary reserve for urgent and unplanned situations, preparation and training of employees (protection and
rescue practice), selection of additional forces from the voluntary corpus and partner organizations, development of a communication plan with employees and the public, etc.

4. OPERATING OF CENTRES FOR SOCIAL WORK IN CASE OF A NATURAL DISASTER

When a natural disaster occurs, the center for social work, like other subjects, operates and responds to the emergency situation by implementing operational measures or performing protection and rescue tasks. Operational measures should be determined within the operating plan and they should have a double character. The first is preventative and it results from the purpose of measures to prevent severe consequences and prevent a threat to grow into a catastrophe. The second is action plan, because measures activate all potentials for protection and rescue of people and for sustainability of the organization and operating of the center for social work. Measures to be implemented are conditioned by the state of natural disaster, that is whether it is a risk from danger or direct threat or whether the threat has already set in and it is necessary to implement measures of evacuating and providing care for people and material goods. In case of direct threat and risk of threat, center for social work analyses the level of threat for the organization, space, employees and beneficiaries, activates measures for alerting, notifying and informing employees and beneficiaries, secures equipment and documentation, moves the organization, if needed and establishes communication with protection and rescue forces and municipal headquarters for emergency situations to inform them on the situation and possible risks. In case when a threat has set in or during the duration of it, center for social work in its operating phase directs its activities towards activation of forces for protection and rescue, direct participation in rescuing, provision of care for evacuated population, prevention of spreading of risk of threat and consequences of threat and information and coordination of activities with other forces. The operating of the center should be organized as a planned and well thought process determined within the plan of operating in emergency situations. The activation of the plan begins at the moment when a threat occurs, when the possibilities of its application are being analyzed and most appropriate measures are being selected. If a plan has not been defined, crisis management will immediately adopt a plan for urgent operating, determine tasks and allocate resources. Crisis management of an organization is active permanently during this phase, it constantly coordinates the work of employees, gathers and forwards information, directs the work of employees, communicates with municipal headquarters, eliminates problems that may occur and ensures that the necessary tasks are being performed. One particularly important activity of crisis management is the engagement in operating of the municipal headquarters. Manager of the center for social work needs to be a member of the municipal headquarters “in order to receive timely and exact information from the field, inform on the situation of social protection beneficiaries and their needs and influence the definition of tasks that this organization is performing following the order of the municipal headquarters in accordance with the center’s mission” [15, pg. 87]. Final activities in the operating phase, that indicate the beginning of the next phase, refer to collection of information on existing and new beneficiaries and recording all relevant information that might be useful in further activities.
5. OPERATING OF CENTRES FOR SOCIAL WORK UPON EMERGENCY SITUATION

The reconstruction or rehabilitation phase begins upon the direct threat to human lives ceased and it is directed towards elimination of consequences of a natural disaster, return to the previous state, improvement of living conditions on the area at risk and promotion and conduction of necessary measures in order to prevent future natural disasters. This is a phase that does not have a time frame and whose activities differ in specific periods. At the beginning, activities are aimed at provision of minimum level of operating of institution of general importance and meeting urgent needs of victims of a natural disaster; after that, activities are directed at assessment of consequences and damage, sanitation of areas, conduction of hygiene and epidemiologic measure, protection of flora and fauna, provision of basic communal services to the population; and in the final phase towards long term recovery and life in threatened areas. Activities of the center for social work include performing the tasks in the field of social, child and family protection in accordance with defined legal responsibilities and other jobs that result from the current situation and responsibilities of the center for social work in its role of a professional service. In addition to direct social work in meeting the needs of beneficiaries, activities of the center will be mainly directed towards identification and monitoring of social needs and issues of victims of a natural disaster, assessment of their state and proposing and implementing of measures to meet the needs and resolve problems. As a professional and qualified institution, this organization possesses the necessary knowledge to make high quality assessment of social needs of the population and to propose to the municipal headquarters operational priorities in order to eliminate the consequences of a natural disaster in a systematic and planned process, which is mutually agreed and based on the state of need and equity. In the frame of the organization, activities are mainly directed towards creation of conditions to ensure the full operational capacity of the organization (working hours, full-time of employees, putting equipment into function, organizing documentation, referrals and communication with beneficiaries, provision of information, urgent operating) and towards planning of future work (elaboration of operational plan for activities according to determined priorities). In the reconstruction phase, the center for social work implements a major part of its activities by providing social support to victims and it represents “various forms of short-term and long-term activities implemented with the goal to neutralize existing situations of crisis and to create conditions for development of personal and collective potentials of the client [13, pg. 218]). Depending on the state and need, available resources and capabilities of professionals, center for social work provides material, informative, educational and psycho-social support. Other tasks that the center for social work deals with in this phase include participation in assessment of damage, distribution of humanitarian aid, keeping records, preparation of reports and information and analysis and informing the public on achievements and social changes in the community upon the natural disaster.

6. IMPORTANCE OF COMMUNICATION IN OPERATING OF CENTRES FOR SOCIAL WORK IN EMERGENCY SITUATIONS

Communication is an important operational part of all institutions in regular, but particularly in emergency situations. The emphasized significance of communication
results from the nature of the crisis itself. In fact, a crisis introduces the institutions in non-standard conditions of operating where ordinary communication channels change significantly. The speed of events, lack of sources of information, insecurity regarding their truthfulness – these are only some of the occurrences that influence the communication process of institutions within the system in situations of crisis. Provision of legitimate information and possibility to manage them is a key challenge for institutional managements. In these situations particular attention needs to be paid on provision of truthful information and strengthening of communication channels in order to enable the inclusion of a large number of subjects of a crisis (institutions and managing bodies) into the process of communication. Good management of communication processes represents for institutions of the system a significant advantage in stabilization of situation and consequences of a crisis. Communication means transferring messages from one side to the other. It is a process of transfer of information that is being developed between the sender and the recipient. It is most commonly defined as “a process of transfer of knowledge, experience, views, information, understanding, thoughts and similar among people in order to achieve a common meaning” [6, pg. 440]. In institutional terms, it is a process of formal exchange of data, information, orders, etc. that have the function of planning, organizing, leading and controlling of operation caused by an occurrence or problem. Key questions that are being analyzed in the communication process are “who communicates with whom, by which means, what content is being transferred and with what effects” [1, pg. 169]. Communication is most often done by direct conversation, through written materials and electronic media. Nevertheless, communication also includes exchange of non-verbal signs, such as gestures, mime, clothing, etc. The main determinant of communication is to achieve understanding and once this is accomplished the ultimate goal of communication is achieved. Communication impacts the development of public opinion, which has an important role because it has a significant impact on the assessment of its own and joint situation at times of crisis and afterwards and, thus, on the behavior and activities of people [17]. A key factor in crisis communication is the achieved level of informing of each individual and the community as a whole. Consequences of insufficient informing may have negative impact on operations during and after the crisis. Situations of panic are often the result of insufficient or “wrong” informing process. It is, therefore, completely reasonable to claim that appropriate informing in situations of crises is equally important as issues concerning provision of food supplies. Communication in situations of crises is much more than just transferring information; it is part of the process of maintaining or developing “a climate of trust” [4] that is the basis for institutional operating. Issues concerning the establishment of an efficient model of communication have an important position in the operating of a center for social work. The overall operating of a center is based on relations of communication: beneficiary – professional, municipality (founder) - center, center – partner organizations, center – media, center – public, etc. The efficiency of center’s operating depends greatly on established communication channels. On the institutional level, communication channels are defined through legal procedures (formal communication). The existence of procedures imposes responsibility in creating and providing information, which is very important for establishment of institutional communication. Communication process in the center for social work during and after an emergency situation is being realized through three groups of activities. The first group of activities refers to development of formal communication channels – within the organizational structure of the center, among the center and municipal institutions involved in
protection and rescue processes (municipal headquarters for civil defense, municipal administration, health center, police, etc.). The goal of these activities is to provide a quick flow and correctness of official, semi-official and non-official information. Main objectives to be achieved through this group of activities include provision of timely and objective information to other institutions, organizations and associations on the role, locality and resources of the center and to make beneficiaries familiar with important information regarding their social protection needs during an emergency situation. The second group of activities refers to communication with the public – public relations. The public is a key subject of operating in situations of crises. Public opinions may have a crucial role on final effects of the protection and rescue process of citizens. The goal is to influence the public in order to create a favorable opinion in cases where this was not the case or to strengthen the already established opinion [8]. The severest problem in public relations is to fight against disinformation. Disinformation may provoke very negative events that could lead to fatal consequences on the operating of institutions during situations of crises. Media are the primary means used to establish communication with the public. The task of the management of the center of social work is to develop good cooperation with media in order to make them their partners in the implementation of activities aimed at provision of social protection for citizens. The ultimate goal of good cooperation with the media is objective and legitimate informing of the public relating to current social protection issues in a situation of crisis. Key activities in this group include organization of press conferences, preparation of announcements, giving statements, organization of blogs on social networks, etc. The third group of activities is directed towards beneficiaries of the system. These activities are aimed at development of good cooperation with the population of beneficiaries, which means that they have a high level of trust and understanding towards the professional working in the center [5]. The reasons for accomplishment of this goal should be considered in two ways – first, through beneficiaries’ interest and second, through outline of the center. Good communication with the center enables beneficiaries to have insight into the possibilities and activities of professional services, which increases the accessibility of social protection services. This opens to the center for social work the possibility to provide quality planning and monitoring of implemented measures towards beneficiaries. The beneficiary, as the most sensible part of communication in a crisis, must not be solely a passive recipient of information and messages; he should have an active role as a source of real information and as a participant in the process of evaluation of implemented measures. The sensibility of the communication process in a situation of crisis indicates the need to prepare a communication plan in centers for social work that should include the definition of internal communication procedures within the center; determination of ways for collecting information in the field; determination of target communication population; definition of inappropriate methods of communication; definition of key messages; monitoring and analysis of media announcements and preparation of reports [15]. Planning is a key activity in the process of management. Without a plan it is not realistic to expect significant steps forward in improvement of communication in centers of social work. Nevertheless, the plan itself will not resolve all issues. Repeated mistakes indicate that it is necessary to work permanently on education and development of managerial competencies in centers for social work in planning and managing a communication process in emergency situations.
7. CONCLUSION

Centre for social work is an important actor of protection and rescue forces in emergency situations that resulted from a natural disaster. Its role is particularly important in provision of protection and care for the most vulnerable: children, elderly, disabled people, persons in condition of social need without family care, and the poorest population. The operating of a center for social work should be done through a planned and well thought process where all elements of the center have clearly defined roles in accordance with activities and responsibilities of this organization. As a professional institution that operates on the level of local community, it is expected that the center is ready and trained to fulfill its role in specific phases of a natural disaster. In its operating, the center for social work must cooperate closely and have a successful communication with municipal headquarters for emergency situations and with all forces of the protection and rescue system.

LITERATURE:
CRISIS MANAGEMENT IN NIS J.S.C. NOVI SAD

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Keywords: Crisis, crisis management, communication in crisis situations, crisis situations management

1. INTRODUCTION
NIS j.s.c. Novi Sad is a Company for exploration, production, refining, storage, distribution, and sales of crude oil and petroleum products and exploration and production of natural gas. It is one of the largest vertically integrated energy companies in Southeast Europe. The Company is organized into 5 different Blocks (production organizational units of NIS j.s.c. NoviSad): Exploration and Production, Services, Refining, Energy and Sales and Distribution. At the corporate level, in support to the production organizational units of NIS j.s.c Novi Sad, there are 10 Functions: Corporate Security, Organizational Affairs, Legal and Corporate Affairs, Public Relations and Communication, External and Governmental Relations, Internal Audit, Material and Technical and Service Support and Capital Construction, HSE (health, safety, environment), etc. NIS j.s.c. Novi Sad is based in Novi Sad and its production capacities are located throughout the Republic of Serbia.
NIS j.s.c Novi Sad is designated as a company which is equipped for protection and rescue at the level of the Republic.
NIS j.s.c. Novi Sad organization is given in Figure 1.

![Figure 1](nis_sad.png)

Figure 1: NIS j.s.c. Novi Sad organization
2. CRISIS MANAGEMENT ORGANIZATION

The system of response to emergency situations and other crisis events in NIS j.s.c. Novi Sad is developed at three levels: on-site response - most incidents are handled in this way, immediate engagement of employees present at the place of event, then response at Block level, in case of an event arising from an incident which has already occurred, but with a potential to escalate and cause additional damage to human life, environment, assets and reputation of NIS j.s.c. Novi Sad, and the third level, corporate response, in case when the measures issued by the Blocks are insufficient, creating a realistic or potential threat to the long-term business capabilities of NIS j.s.c. Novi Sad, affecting its reputation, legal/financial obligations, and business capability, hence crisis management in NIS j.s.c. Novi Sad is performed at the corporate level. Specific roles and responsibilities of individual job positions and employees at this level of response are defined by the Disaster-Crisis Management Plan in NIS j.s.c. Novi Sad. Pursuant to the aforesaid Plan, the Disaster-Crisis Management Team is appointed in NIS j.s.c. Novi Sad, consisting of the NIS j.s.c. Novi Sad top management, chaired by the Chief Executive Officer (hereinafter: the Team) and Support Group of the Disaster-Crisis Management Team in NIS j.s.c. Novi Sad (hereinafter: the Group) [1]. By defining the work procedures of individual Team members and the Team as the whole, during the activity of the Team (when it is active), a higher level of crisis management efficiency is achieved, i.e. normalization of the work process in case of disrupting the continuity of NIS j.s.c. Novi Sad business operations.

Crisis events shall mean the events in NIS j.s.c. Novi Sad caused by natural disasters, technical and technological accidents and other events which threaten or may threaten human life and health, environment, assets and business, the consequences of which cannot be prevented, eliminated and mitigated by regular engagement of NIS j.s.c. Novi Sad employees, through contracts with engaged service providers for prevention or remediation of the consequences of emergencies, i.e. when the additional measures issued by the Emergency Preparedness and Response Teams in the NIS j.s.c. Novi Sad Blocks are insufficient. The most common causes of crisis in companies are as follows:

- Sudden suspension or announcement of an imminent discontinuity of business to the significant extent
- Product and service price fluctuations on the market aimed at creating a slump in business
- Sanctions (economic and other) imposed to the company or to the country in which company operates
- Large-scale natural disasters
- Technical and technological accidents
- Confrontations (boycotts, strikes, protests, ultimatums, blockades of roads and facilities) making the working conditions difficult or interrupting the company's operation
- Criminal acts (killing, kidnapping, terrorism, espionage)
- Misdeeds of employees in the organization (when there are actions taken in the company, which are damaging to company or stakeholders)
- Spreading rumors (e.g. making malicious associations between the company and extremist groups or rumors about harmful effects of certain product brands)
- Emergency and state of war in the country or in the region where the company operates
2.1 Disaster-Crisis Management Plan in NIS j.s.c. Novi Sad

The Disaster-Crisis Management Plan is a document which defines the response procedure of NIS management in case when the threat of occurrence of a disaster-crisis event (hereinafter: crisis) is realistic, or in case of an occurrence of a crisis event in the company or disruption of business continuity. The Event Classifier of NIS j.s.c. Novi Sad defines the events that may disrupt business continuity. Event classification in NIS j.s.c. Novi Sad is to enable easier recognition of events related to possible crisis events. The purpose of this document is to provide the Team/Group members with guidelines for their work, so they precisely know their duties, roles, responsibilities and procedures, can start their work as Team/Group members as soon as possible in case of a crisis event, and make key decisions faster, related to elimination and/or mitigation of its consequences.

2.2.1 Disaster-Crisis Management Team in NIS j.s.c. Novi Sad

The Team consists of company managers occupying the key role in decision-making in case of a disaster-crisis. The Group consists of company employees who ensure working conditions for the Team in case of a disaster-crisis, having the defined activities, roles, responsibilities, and principal tasks of individual Team/Group members and deputy members, in compliance with the Plan and activities from their field of competence. The Team’s role is to act as the center for receipt of information on threats of the occurrence of crisis events, the event itself, and the activity coordination center at the level of NIS j.s.c. Novi Sad in case of a crisis event. The Team has the following duties and responsibilities before, during and after the crisis event: efficient receiving, processing, analysis and distribution of information, definition of activities related to preparedness and prevention, decision-making on particular responses to a crisis event, strategic business planning before, during, and after the crisis, defining activities related for remediation and elimination of consequences, defining priority activities, coordination of field activities, keeping records on activities during the event, communication with stakeholders, keeping contacts with external crisis response organizations/services, disseminating information related to communication, both external and internal [2]. The Team members have an advisory role, as they are engaged in the decision-making process during crisis, and an operational role, as they provide operational support and propose application of additional strategic measures within their competence.

The Team has a Group which provides support to the Disaster-Crisis Management Team, consisting of employees from different organizational units. The role of the Group is to undertake activities delegated by the Team members and provide operational support to the Team in the process of decision-making and response. When making decisions, the Team is guided by the main priorities (in any emergency or crisis), such as:

- Occupational safety and health,
- Mitigation of consequences to the environment,
- Protection and enhancement of reputation,
- Minimization of downtime, renewal of business as soon as possible,
- Coordination of the work of the Blocks and support to the national Headquarters for Emergency Situations in the activity of mitigation of the effects of the crisis event.

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Protection of property from further damage,

Disseminating information to the competent government authorities, media, management, and emergency preparedness and response Teams within Blocks, on the duties relevant to the ongoing emergency,

Minimization of financial and other liabilities resulting from crisis event,

Using business policy followed during the crisis event for further prosperity of the Company,

Ensuring business continuity within the competence of each Team member.

The Team executes its tasks according to the Disaster-Crisis Management Plan of NIS j.s.c. Novi Sad and the Emergency Situations Protection and Rescue Plan of NIS j.s.c. Novi Sad. In case of occurrence/announcement of emergency in the Republic of Serbia and emergency in NIS j.s.c. Novi Sad, which may cause severe consequences to the environment, the representatives of competent government authorities (Ministry of Interior Affairs, Republic Headquarters for Emergency Situations, Ministry of Transportation, etc.) may also participate in the work of the Team, at the request of the aforesaid authorities or the CEO of NIS j.s.c. Novi Sad. All Team members must be able to respond to the call in case of a disaster-crisis, by coming to the place where Team is about to meet or by getting involved in the work via telephone-video conference, 24 hours a day, 7 days a week, 265 days a year, regarding all calls. The rooms where the Team works are predetermined and adequately equipped for the Team's work. Several locations are designated for the Team's work: basic, backup and field locations, specified in the Disaster-Crisis Management Plan of NIS j.s.c. Novi Sad. The rooms where the Team/Group works are air-conditioned, with adequate technical equipment (IT infrastructure: lap-top computers, several internet connections, video-conference equipment, projector, landlines, office equipment), and the documents required for the Team's work (Disaster-Crisis Management Plan, Plan Handbook - short version of the Plan, Emergency Protection and Rescue Plan of NIS j.s.c. Novi Sad, Accident Protection Plan, Major Accident Prevention Policy for Seveso Plants, fire protection plans for individual facilities, layout of the site and units in the facilities, topographic and road maps, as well as any other documents requested by the Team.

2.2.2 Activation of the Team

The Team will be activated when there is a threat of occurrence of a crisis event, during and after occurrence of the crisis event in NIS j.s.c. Novi Sad, when the Chief Executive Officer of NIS j.s.c. Novi Sad or the Team Coordinator (Group Coordinator) decides that there is a need to activate the Plan due to:

- scope and extent of the threat affecting NIS j.s.c. Novi Sad as a whole,
- announcement of emergency state in Republic of Serbia,
- a request of the National Headquarters for Emergency Situation, or the Headquarters for Emergency Situation of the Autonomous Province of Vojvodina, local government, or competent government authorities for involvement of the Company in the protection and rescue of residents in Republic of Serbia,
- a reasonable request for assistance of any NIS j.s.c. Novi Sad OU in which the event has occurred,
- a crisis event outside the Republic of Serbia, in an area where NIS J.S.C. Novi Sad employees stay and work, i.e. in the areas where subsidiary companies in Bulgaria, Romania, Hungary, Bosnia and Herzegovina operate,
- assistance of NIS J.S.C. Novi Sad is required by the government authorities, GPN (Gazprom Neft) and other external companies in the country and abroad.

The activity of the Team takes place in the form of a Team meeting chaired by the Team Coordinator/Deputy Coordinator, at the locations designated for the Team activity.

The Team consists of the key members who always engage in the Team activity depending on the type of crisis and other members who engage by order of the Team Coordinator/Deputy Coordinator.

Having accepted the call to participate in the Team activity and to attend the Team follow-up meeting, the invited Team member:
- Obtains additional information (if needed) regarding the event, as to be able to fulfill his/her duties specified in the Team Plan during the follow-up meeting.
- Delegates or carries out the entrusted tasks (performed when the Team is activated), prescribed by the Team Plan.
- Prepares to visit the site (collects IT equipment, studies the brief on the Team activity, collects engineering and other documents related to the place of event),
- Visits the site - room designated for the Team activity during the follow-up meeting of the Team, defined by the Team Plan.

In the composition of the Team, or the Group supporting the Team, two logkeepers must be appointed, entrusted with recording and keeping records of individual events and developments, recording and keeping entries on key decisions, explaining contrary records, selecting and updating material relevant for the Team and Group meeting rooms (forms, maps, posters, brochures, handbooks), by filling out/updating forms during the Team or Group sessions, and presenting them for review of the Team/Group (manually - posters, or electronically - using a projector), keeping photos, video recordings, requests and other documents relating to the crisis event, contacting with the Coordinator of the Emergency Preparedness and Response Team of the Block, if required, share information with the Team/Group received from the Coordinator of the Emergency Preparedness and Response Team of the Block. In the period when Team is active, the Team members perform their work through individual work and follow-up Team meetings in the rooms for Team activity. Conditions permitting, when the follow-up Team meeting is not in progress, Team members may perform their work (conditions permitting) in other rooms as well. Good global practice recommends several brief Team meetings (Figure 2) [3].

![Figure 2: Team activity diagram](image_url)
3. COMMUNICATION IN A CASE OF CRISIS IN NIS J.S.C. NOVI SAD

3.1 Reporting on the occurrence of a crisis in NIS j.s.c. Novi Sad or an emergency in the Republic of Serbia which may affect NIS j.s.c Novi Sad

Each employee is obliged to inform the line manager or the Call center of NIS j.s.c Novi Sad on all events -emergency and crisis situations, which could affect operations of NIS j.s.c Novi Sad and which occurred in the areas where NIS j.s.c Novi Sad is operating or holds assets (participant, an eyewitness). This activity is carried out in accordance with several regulations of NIS j.s.c. Novi Sad, such as HSE Communication in NIS j.s.c Novi Sad, Instructions for Operational and Electronic Notifications on HSE Events, and Classifier of HSE events in NIS j.s.c Novi Sad. Based on the obtained information on the imminent threat of a crisis situation, the Section for Defense and Emergency Situations (HSE Function) prepares the initial report thereof and sends e-mails to offices of directors and line managers and activates the Support Group in the composition defined by the Disaster-Crisis Management Plan. In accordance with the received information, the line managers organize the further activities of NIS j.s.c. Novi Sad organizational units. The Coordinator of the Crisis Management Team activates the Team, gathers the key Team members in the designated room for work, indicated in the Plan.

3.2 Reporting to the Management

Reporting to NIS j.s.c. Novi Sad management on the situation in NIS j.s.c Novi Sad during the crisis situation is achieved through Regular and Emergency Reports by the HSE Function. The occurrence of a crisis situation introduces the obligation of regular and emergency reporting on the condition in the NIS j.s.c Novi Sad OU (condition regarding employees, equipment, facilities), malfunctioning caused by the crisis situation, the requirements of relevant government authorities and local governments, and need for aid. Regular and emergency reports are created by NIS j.s.c Novi Sad OU. The regular report represents a daily report on every 24 hours (every day by 10 am for the previous day) and an operational report on every 3 hours. Regular and operational reports provide (disclose) information that have emerged over the previous three hours, compared to the previous Operational Report. The emergency report is created in cases where there is a threat to employees, property of NIS j.s.c Novi Sad, disrupted business processes in NIS j.s.c Novi Sad and when there is a need for aid and to allocate additional funds for the elimination of hazards or consequences. All collected information (regular and emergency reports) are delivered electronically to the Section for Defense and Emergency Situations, respectively for the purposes of the HSE Function, Office of NIS j.s.c Novi Sad CEO, Disaster-Crisis Management Team in NIS j.s.c Novi Sad.

3.3 Reporting to Employees

Reporting to employees on the condition in NIS j.s.c. Novi Sad during the crisis situation is carried out via NIS j.s.c. Novi Sad portal, by producing leaflets (flyers), HSE posters, e-mail, PA system, SMS. This activity is performed by the Internal Communications Department, Public Relations and Communication.
3.4 Reporting to the Public

Reporting to the public about the condition in NIS j.s.c. Novi Sad is done by the External Communications Department, Public Relations and Communication in cooperation with the Section for Defense and Emergency Situations, in accordance with NIS j.s.c Novi Sad Standard: Media Relations Management.

3.5 Reporting to Competent Government Authorities

The competent government authorities are reported on HSE events (emergency or crisis situations) in NIS j.s.c Novi Sad, in accordance with the List of Government Authorities of the Republic of Serbia, which are informed on HSE events in NIS j.s.c Novi Sad [4]. Reporting to competent government authorities is performed by the appointed persons, responsible for communication with the competent government authorities in the NIS j.s.c Novi Sad, by relevant fields. For each employee, who is entitled to contact the competent government authorities, the following is defined: which government authorities to contact and based on which regulation, on which basis the contact is made, what is the obligation and in which cases the competent government authorities are to be contacted, and for which OU/facility of NIS j.s.c Novi Sad. Employees of the Section for Defense and Emergency Situations are authorized, on behalf of NIS j.s.c Novi Sad, directly or through the Call Centre of NIS j.s.c Novi Sad, to communicate with the Department of Emergency Situations of Ministry of Interior of the Republic of Serbia, headquarters for emergency situations of local governments of the Autonomous Province of Vojvodina and the Republic of Serbia on the condition in NIS j.s.c. Novi Sad in case of emergency. During the crisis situation, Function for External and Governmental Relations of NIS j.s.c Novi Sad cooperates and coordinates the requirements of competent government authorities to NIS j.s.c Novi Sad, in the part relating to the functioning and fulfillment of obligations arising from regular business activities. Function for External and Governmental Relations of NIS j.s.c. Novi Sad informs the competent government authorities on the key decisions related to the business activities of NIS j.s.c. Novi Sad, and notably on the changes in mode of operation during crisis situation. Function for External and Governmental Relations of NIS j.s.c Novi Sad informs, on a daily basis, the Office of NIS j.s.c Novi Sad CEO and the Disaster-Crisis Management Team of NIS j.s.c Novi Sad, activated during the crisis, about its activities. The Director of Function for External and Governmental Relation is a Team member and is one of the key members involved in the Team activity, regardless of the type of crisis (financial, technological, etc.). In case of occurrence of an emergency situation in Republic of Serbia, which may lead to a crisis in NIS j.s.c. Novi Sad, all the requirements of the Headquarters for Emergency Situations of local governments, administrative districts, Autonomous Province of Vojvodina and other authorities and the protection and rescue persons who visit NIS j.s.c. Novi Sad during an emergency situation, shall be considered in cooperation with the Headquarters for Emergency Situations of the Republic of Serbia (Sector for Emergency Situations), depending on the nature of the requirement.

4. CONCLUSION

Crisis management is closely related to business continuity management [5]. These two processes should not be separated as to facilitate improved planning of preparations for possible crisis events that may threaten existence of the company or have long-term
effects on its operation. In NIS j.s.c. Novi Sad, some crisis situation have been recognized which may occur in the company and intensive actions are taken regarding the full implementation of the crisis management system by continuous revisions to the Plan and Team drills for work in cases of a crisis.

REFERENCES

[6] Standards, instructions and planning documents in NIS j.s.c Novi Sad governing procedures and communication in case of emergency/crisis events (emergency situations).
THE WAHHABI MOVEMENT IN THE WESTERN BALKANS

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Abstract: With the emergence of the Wahhabi movement in the Western Balkan region, the religious harmony among the nations has partially been damaged, whereat various forms of its radical manifestation have been identified, which, in the previous period, resulted in extremist activities and terrorist threats. These forms of its manifestation, along with a high degree of interconnection and interdependence of Wahhabism in the Western Balkan countries, caused the Wahhabi movement to become one of the biggest non-military threats in the region. The fertile ground for spreading Wahhabism in the Western Balkans was primarily made by the conflicts fought in the past in ex-Yugoslavia, which were completely initiated from outside and supported with material and financial potentials by the most influential countries of the Islamic world. Further radicalization of the Wahhabi movement, in cahoots with Islamic extremism, causes more serious undermining of the national security in the Western Balkan countries and has a negative impact on broader environment, first of all through recruiting a part of Wahhabis for terrorist acts in the country and their greater participation in fights for the Islamic State.

Key words: Wahhabi movement, Islamic extremism, security, Western Balkans, Islamic State.

1. INTRODUCTION

By strengthening integrative processes, the countries of the Western Balkan region have been endeavoring to achieve the long-term goals they have established, in order to gain a complete affirmation in the newly created trends of the globalization and to meet their own political, economic and other interests. However, on the way of achieving the goals they have been pursuing, certain organizations and movements have been emerging only to expedite, with their actions, the disintegration-oriented activities and considerably slow down the reform processes, aiming at creating their own picture of the future. The majority of these movements have been active over a very long period of time, but due to a series of adverse events, over the past years they have been the focus of interests of all nations in the Western Balkans and the broader geo-political space. One of them is the Wahhabi movement, i.e. Wahhabism [7], which over the time has been integrated in our terminology, just like many other Turcims, in the term “Wahhabism”, i.e. “Wahhabi movement.” Wahhabism is said to have emerged in the time period when it gained the strength of an organized movement within Islam (Wahhabism is over 250 years old, and began it the mid 18th century), but like many other religious movements and doctrines, it did not
attract too much attention. However, Wahhabism gained a sudden interest of the public after the terrorist attack on the World Trade Center in New York on 11th September 2001.

The development of Wahhabism and its proliferation among Muslim and non-Muslim population, among the wealthiest people in the Middle East first of all, caused the emergence of the organized movement which received significant elements of logistic i.e. financial support. Owing to the said support, today it is more often heard of a phenomenon of sustainable existence of an independent religious doctrine being under the auspices of Islam, propagating extremist Wahhabi ideas – “modern Wahhabism”. This type of activities and bringing the Wahhabi movement into correlation with extremist ideas in interpreting and practicing Islam inevitably imposes a need for its organized study in order to provide conditions for protecting non-Islamic nations from the fast-growing Islamic extremism, which, in some cases, can take the forms of terrorist threats.

The analyses of most prominent authors on the religion have proved that Wahhabism tends to make the criteria for adherence to Islam uniform. In achieving the mentioned goal, Wahhabism does not hesitate to apply extremist methods in order to be fully accepted by Muslim population and be further expanded and conveyed to all people in the world. Tendencies of such Wahhabism development are completely in the interest of strengthening Islamic extremism, which may result in the emergence of some forms of terrorist threats, and in sensitive parts of the world, in the outbreak of small-scale conflicts and even local and regional wars.

In the Western Balkans today, the Wahhabi movement is a new form of the religious doctrine and an obvious example of gradual, quiet and developing-oriented creation of necessary conditions and a firm foundation for the massive spread of Islam among non-Muslim population. The fertile ground for spreading Wahhabism in the Western Balkans was primarily made by conflicts fought in the past in the territory of the former Socialist Federative Republic of Yugoslavia (SFRY), which were completely initiated from outside and supported in human resources and financial and materiel potentials by the most influential countries of the Islamic world.

By spreading Wahhabism in the Western Balkan region, the traditional forms of beliefs, which were restrained and controlled to the greatest possible extent during the Communist era, have been shaken among the population being Islamized throughout the centuries. Having the elements of politics and militantism, as well as possible extremism, this form of Islam calls for alertness and attention, not only of public bodies but all people living in the Western Balkan countries, first of all because some Wahhabis (the Bosniaks, Muslims and Albanians) have participated and increased their engagement in fights for the Islamic State.

2. EMERGENCE AND DEVELOPMENT OF WAHHABISM

Wahhabism is a conservative movement in Islam which was founded in Saudi Arabia in 19th century by the Arab philosopher Muhammad bin Abd al-Wahab (1703-1791). Born at the time when the stagnation of the Ottoman Empire began, Wahhab thought that Islam had to be spiritually purified from Ottoman decadence and brought back to original dogmas. Wahhab claimed that soon after the Prophet Muhammad died, Muslims returned to unfaithfulness as it was before the emergence of Islam. He believed that the human society should be governed by God’s not human law [2].
Abd al-Wahab’s uncompromisingly strict religious attitudes were accepted by Muhammad bin Saud, the chief of the tribe Diriyah in the mid 18th century. The religious and political alliance of the emir and the religious sheik was confirmed in 1743 by the marriage of Muhammad bin Saud’s son and Muhammad bin Abd al-Wahab’s daughter, whose descendants would later become masters of the almost entire Arabian Peninsula. In 1747, Muhammad bin Saud announced publicly that he would use his power and influence to support the Wahhabi movement and declared bin Abd al-Wahab’s beliefs to be the most truthful. He held for himself the political and military power, and Muhammad bin Abd al-Wahab became the ultimate religious authority. That act determined the future of the movement which has existed up to now as a powerful religious and political association in Arabia, where the Al-Saud dynasty and the Wahhabi fundamentalism have a complete predominance [6]. The development of Wahhabism was going on along with the creation of the Islamic State, where Saudis have been strengthening the religion through establishing various organizations and Muslim associations, aiming at re-establishing Wahhabism as a dominant Islamic movement and not hesitating to apply extremism. By accepting Islamic extremism, the Wahhabis become fundamentalists ready to give their lives for Jihad and to kill others. Wahhabis thought that the choice of faith could not be someone’s free will, but that it had to be defended with a sabre if needed (the call for holy war – jihad). In Europe, the term “jihad” has most frequently been translated as “holy war”, with a remark that Islamic authorities are against such an attitude [9]. By studying Islam in general, and particularly the doctrines followed by Wahhabis (Wahhabites), it can be seen that the key of the Wahhabism expansion is grounded in the financial power of Saudi Arabia. This state is the world’s largest oil exporter and the most significant foreign trade partner of the U.S.A. in this field. In the rest of the Islamic world, the spread of Wahhabism is not welcome, partly due to differences in interpreting Islam and partly due to political reasons. Finding the connection between the Wahhabi movement and extremism activities, and even sometimes with terrorist acts, as well as finding the extremism elements in the Wahhabi interpretation and practice of Islam, has imposed a need to study this phenomenon through the context of extremism, and in some segments, the terrorism itself. However, Islam should not be classified under the auspices of terrorism, because this type of attitudes is incorrect and not scientifically based. More precisely, the attitudes of some authors cannot be approved, who make generalization after several terrorist acts all over the world and seek causes of terrorism in Islam, but a fact has to be accepted that it is only a “part of the Muslim world”, where, no doubt, the followers of Wahhabism most frequently belong to.

3. THE WAHHABI MOVEMENT IN THE WESTERN BALKANS

The potential trouble spot of Wahhabi extremism is the Western Balkan region. Wahhabis have always been present in this geo-space and do not hesitate to use radical measures to achieve their goals. The awareness of citizens of the Western Balkan region has gradually been increasing, and they are becoming more careful due to the rise of radical Islam and acts of the world terrorist network – Al-Qaeda [8]. For the sake of further development of good relations with the countries of Islamic world, Saudi Arabia first of all, the U.S.A. is still convinced that “moderate” Islam is the only antidote for “radical” Islam. Guided by the before mentioned strategy, the U.S.A. is
still striving to demonstrate that they support the Muslim cause in the Balkans, which, among other things, has contributed to growth of the Wahhabi movement in this region. Regardless of the high involvement of Western European politicians in integrative processes in the Western Balkans, there is still a high degree of misunderstanding not only of the Wahhabi movement threats but also of other burning issues and historical facts. Within the Balkan context, it is a fact that American support to Bosnian Muslims and Albanians in Kosovo and Metohija was given to score points with the Islamic world. Besides American and Saudi support, in the Western Balkan region Al-Qaeda also supported terrorist and separatist movements of the Muslim population (the Albanians and Bosniaks) with over 700 million dollars. Bearing in mind everything said previously, Europe needs to understand on time the danger posed by Wahhabism and prevent the offensive of aggressive Islam [1].

3.1. The Wahhabi Movement in Bosnia and Herzegovina

The Arab office “Taliban-International”, which was officially a humanitarian organization, is responsible for the arrival of Wahhabis in the area of ex-Yugoslavia. From 1989 to 2002, tens of thousands of foreign citizens coming from Islamic countries entered B&H, and according to the data available, about 30,000 of them have not, at least officially, left B&H. It is assumed that there is a big number of Wahhabis among them who, with the assistance of the Party of Democratic Action, received the citizenship and settled down in this Balkan state. However, this number should also be added the mujahdeens who fought in the Muslim army in the 1990s and acquired the citizenship and permanent residence. Thus the extremist religious core was made, the expansionist acts of which have made Wahhabism one of dominant Islamic movements, which, according to assessments of security services, make up from 5% to 10% of the Muslim population in B&H.

The activities of the Wahhabis in B&H began with the arrival of fighters from the Islamic countries who, following the end of the civil war, established a community in the village of Bočinja (the municipality of Maglaj), wherefrom they spread their ideas, which later turned into the radical interpretation of Islam and culminated in terrorist attacks. More precisely, the beginning of the Wahhabi or Salafi movement in B&H is attached to a unit in the Army of the Republic of B&H, El Mujahid, which, during the war, operated in central Bosnia. The core of the unit was made up of people from Arabic countries, who had already gained the “rich” combat experience in other conflicts all over the world.

After signing the Dayton Agreement (in November 1995), the U.S.A. wanted the Bosnian Government to expel all foreign fighters from its territory. After 6 years of blatant disregard, investigators from all over the world finally found B&H to be a big center for recruiting terrorists and raising funds for the individuals who were working on behalf of Al-Qaeda.

At the beginning of this decade, the center of gathering Wahhabis became Sarajevo, which little by little took over the dominance from peripheral towns and rural areas of the Muslim-Croatian Federation, where the Wahhabis used to diffidently gather earlier. The expert group for countering terrorism in South-East Europe has several times presented data on the increased activities of Wahhabis in the Serbian Republic as well, including the establishment of new bases. In some residential areas in B&H, where the Serbs used to live before the ethnic conflicts at the end of 20th century, the Wahhabi
communities have been established, which represents an additional threat to peace and security in the region. The prominent Muslim believers have mainly understood the danger of Wahhabis and have been calling for denial of the Wahhabi doctrine, although the state institutions still tolerate this movement. The international institutions believe that no matter how obvious the growth of the Wahhabi movement and extremism is, it is still possible that the Bosniaks (the Muslims) start the true negotiations with the Serbs and Croats about establishing the authentic federation which observes rights, security needs and identities of all three communities – which is the only way for B&H to get the opportunity to survive. But this is unlikely to happen, because the Muslims are convinced that the foreign powers, primarily the U.S.A, will still hold a finger on the balance to secure their dominance. The attitudes of European politicians on the Wahhabis in B&H are different, some of them saying that the goal of Wahhabis is to reinforce their influence in this region using it as a spring board for spreading their activities in Europe, with others saying that it is only a small, isolated group which is loud but which cannot attract a lot of adherents and thus does not pose a threat. The radicalism and rigidity of Wahhabis are repulsive to the vast majority of citizens, but their ideas may be found attractive to people who feel to be betrayed and desperate, particularly in the time of crisis.

3.2. The Wahhabi Movement in Serbia

The radical Islam manifested in the form of expanding Wahhabi movement is a serious threat to the security of Serbia, and many local and world experts have been warning to this threat. [5]. The young people in Serbia are more often being targeted by many different religious go-betweens, particularly by the Wahhabis in the areas populated by Muslim citizens. The target group of the Wahhabis is mainly the poorest Muslim families with a lot of children, trying in their initial activities not to openly recruit the family members but to help them with money (they provide them money secretly), and then being “good friends” they feed them “spiritually”. The Wahhabis in Serbia were firstly mentioned at the beginning of the last decade, when they appeared in mosques in Novi Pazar trying to impose their interpretation of Islam. In Serbia, there are several thousand followers of the Wahhabi movement, mainly in the territory of Kosovo and Metohija, the south of central Serbia and the Raska region, primarily in Novi Pazar, Tutin, Priboj and Sjenica.

3.2.1. The Wahhabi Movement in Kosovo and Metohija

The Wahhabi movement is a challenge for Kosovo and Metohija, although the newly-created political elite of the southern Serbian province finds it to be a “sect” which does not pose a threat, explaining that people in this region do not support sects of any kind and that Wahhabism does not have the support required to be a security problem. First Wahhabis began to appear in the southern Serbian province some twenty years ago, but their presence began to be noticed only after the NATO aggression on the Federal Republic of Yugoslavia. Wahhabism is spread in Kosovo and Metohija by graduate students from Islamic universities of the Arab countries and, primarily,
Islamic charity organizations which are, at this moment, the strongest pillar of the Wahhabi breakthrough to the Balkans. With the abundant financial support of Saudi Arabia earmarked primarily for recruiting young believers through opening new religious schools founded on the Wahhabism principles and through building mosques designed according to the Wahhabi model (white color, with no minaret), a new generation of Albanians is being formed who are going to practice a more rigid form of Islam, which is unfamiliar with the religious tolerance and according to which Islam has to be imposed by force. With activities of this kind, the socio-political awareness of the Muslim population in Kosovo and Metohija is also considerably being changed and this may lead to the mass support for the expansion of extremist and terrorist ideas. George Copley, a director of the prestigious Institute for International Strategies in Washington has said that there is abundant evidence that there is a big number of terrorist groups in Kosovo and Metohija and that “the majority of them are connected with al-Qaeda”. The evidence which underpins this thesis is supported by professor Jevtić: “The chief of the Albanian Intelligence Agency, Fatos Klosi, confirmed that Osama bin Laden had been involved, in cooperation with Bashkim Gazidede a chief of the Albanian Intelligence Service - SIK during the rule of Sali Berisha, in making preparations for everything what was going on in Kosovo and Metohija. He organized the visit of Osama bin Laden to Albania, organized the arrival of Al-Qaeda fighters in Albania and Kosovo and provided support for establishing and supplying Al-Qaeda training camps in Kosovo and Metohija and Albania” [4].

Enormous economic and strategic interests have been involved in solving the Kosovo problem regardless of the fact that it is a small territory. After the NATO aggression in 1999, the support of Saudi Arabia did not arrive only in Kosovo and Metohija but it was also allocated to the Albanians in the south of Central Serbia, in the municipalities of Bujanovac, Preševo and Medveda. It is believed that there are three reasons for the rapid expansion of Wahhabism in Kosovo and Metohija: the lack of opportunities, exploitation of tough economic crisis and taking advantage of social tension whilst forcing the revolt of the poor and the disempowered; taking advantage of the internal religious chaos and the momentary crisis inside the Sunni Islamic religious community, as well as the large-scale financial support provided by Saudi Arabia. The first reason for the Wahhabism expansion in Kosovo is the bad situation, where, apart from the international organized crime, there are no other economies. The unfavorable economic environment is the main reason for conflicts arising between the Sunnis and Shias. More precisely, the entire organized crime is in the hands of Shia clans, while the local Sunnis, if they are not involved in any criminal activities, are very often literally on the brink of starvation. In an underdeveloped, tribal and sectarian community, where the organized crime is the only or the major economic branch, it is not possible to organize any civil option. Kosovo, as suggested by Western European experts, is one of many underdeveloped Islamic societies where there is no modern middle class or modern institutions, thus making any Western political option in them impossible. The first reason for the Wahhabism expansion in Kosovo is taking advantage of the momentary religious chaos and the crisis in the Sunni religious community, which is slowly losing its legitimacy because of the internal conflicts. In such conditions, a particular problem refers to the fact that the most numerous religious community (Sunnis), i.e. their “Islamic Religious Community”, which was defined as a centralized
institution in the Communist era, is rapidly losing its legitimacy because of the internal conflicts and emergence of various Sufi sects, which had existed traditionally in Kosovo before the Communist era. The Wahhabis are deliberately taking advantage of this situation, manipulating the citizens and exploiting the internal split of the Sunnis, primarily with recruiting new followers.

The third reason for the Wahhabism expansion in Kosovo is the infiltration of large-scale financial funds from Saudi Arabia to the target groups, primarily to shantytowns where social differences are highest. In villages, people work in agriculture, which provides them some sort of security so that they can survive, and there are still tribal connections which make people stay together and provide them a certain social security. On the other hand young people in towns, if not belonging to the Shia minority controlling the state and the organized crime, live in the conditions of permanent social vulnerability.

Regardless of the said reasons for the Wahhabism expansion, the Balkan option of Wahhabism is still predominant in Kosovo and Metohija. Unlike other countries of the Islamic world where a radical, terrorism-inclined Islamic school known as Wahhabism i.e. Salafism is being spread, Kosovo is different. This difference of Kosovo can be seen in the following facts: the southern Serbian province lived in the Communist era for about 50 years, there were social institutions built in accordance with the Western world institutions, the territory is historically connected with Serbia and the Albanian population in Kosovo is both Muslim and Christian. Regardless of the fact that Sunnis are larger in number, Kosovo is ruled by Shias, and the influence and ideology of Iran pervade through Shia power. Thus Kosovo, by its identity and its past, is different in many aspects from the majority of Islamic countries, such as Pakistan, Algeria, Morocco or Iraq. That is why the foreign analysts who study developments in Kosovo, Albania and western part of Macedonia have observed that in its approach, organization, rhetoric and goals Wahhabism in Kosovo, i.e. among the Albanians in the Balkans with their core in Kosovo, is in many aspects different, more modern and more sophisticated than Wahhabism in the rest of the Islamic world.

### 3.2.2. The Wahhabi Movement in the Raska Region

Apart from Bosnia and Herzegovina and Kosovo and Metohija, the Wahhabis have considerably been spreading in the Raska region (the so called "Sandžak"), both in Serbian and Montenegrin parts of this area. It is assumed that the percentage of Wahhabis in the Balkans, when compared the territorial division and demographic structure of the Muslim population, is the largest in "Sandžak".

The security analysts from the Republic of Serbia have been indicating that the Raska region is flooded with Wahhabis, primarily in Novi Pazar, Sjenica and Tutin. In the territory of the Raska region, Wahhabis are still operating in small and closed groups which are funded from secret accounts and by hidden activities of some international humanitarian organizations, the Islamic agency from Saudi Arabia and several organizations founded by Iran. The KLA (Kosovo Liberation Army) cells had been operating in accordance with the above mentioned system till the moment they became the real army which was capable of waging the war. The seat of Wahhabism in the Raska region is Novi Pazar, and its branches have been detected in Sjenica and Tutin. The number of the extreme core is between 150 and 200 people and there are about 2,000 followers.
Over the past few years, the Wahhabi movement has suddenly been popularized, primarily because of the funds being paid to new members. This trend is particularly popular with the young, but with the old Muslims as well who, until recently, refused to practice the Wahhabi doctrine.

One of the reasons for the Wahhabi expansion in this region is education of young missionaries in Saudi Arabia. Funding of the Wahhabi movement primarily comes from Saudi Arabia. The funds are paid to the accounts of the Rijaset of the Islamic Community of B&H and the Mesihat of the Islamic Community in Serbia.

Over the past dozen years, in the Raska region Wahhabis emerged with a series of extreme activities, manifesting some forms of terrorist threats. Many examples of these harmful activities are known both locally and internationally, such as breaking-up the concert of the band “Balkanika”, then wounding three Wahhabi members in front of the Arab mosque in Novi Pazar, apprehension of four Wahhabi followers and seizure of a quantity of weapons and explosives in the mountain Ninaja, in Sjenica-Pester Plateau in 2007.

The above mentioned incidents in the Raska region are the warning that the measures must immediately be undertaken for protecting citizens from the violence posed by the members of the Wahhabi movement, because the military aspirations of Wahhabis are not limited only to the territory of our country but much broader, to the territory of entire Europe.

3.3. The Wahhabi Movement in Montenegro

The destructive activities of Wahhabis in the territory of the Western Balkans include Montenegro as well. The Wahhabi strongholds in neighboring countries, first of all in bases in Bosnia and Herzegovina, Albania and southern Serbian province, have inevitably projected the radical religious influence on the most sensitive parts of Montenegro. Particularly characteristic activities of Wahhabis are in the areas populated by the mixed population, where non-Muslim population is openly contacted as well. The focus of their operations in the previous period was on dissemination and transfer of propaganda leaflets, religious literature, and money, and also on recruiting young Montenegrins of Muslim affiliation to join this “movement” and be sent to various training camps to Saudi Arabia and other Islamic countries.

The Wahhabis are the most numerous in the northern part of Montenegro, in the so called Montenegrin part of "Sandžak", notably in small towns of Rozaje and Plav, which are located in the direct vicinity of Serbia, Kosovo and Metohija. In addition to what was previously said, it has been observed that Wahhabis have been “stimulating” moving to Ulcinj, with the aim of making a stronghold at the Montenegrin coast.

The assessments of Montenegrin intelligence and security services indicate that Wahhabi in Montenegro do not pose a threat to the country, but it is a fact that they are making trouble to the Islamic community because they interpret the faith differently. According to the data which are available to the public and which are based on the assessments of the Police Department and National Security Agency, about 150 extreme Wahhabis are currently operating in Montenegro. The radical Wahhabi futurists believe that “after Macedonia, it is Montenegro’s turn” to be the place where there will be “the outbreak of conflicts between Wahhabis and the rest of population”. However, these predictions were considerably been disturbed when Montenegro joined NATO, but there is still the latent danger of the outbreak of guided crisis. Although
the Islamic fundamentalists from Arabian Peninsula are striving to bring back early Islam, the “Balkan” variant of Wahhabism is active at the time being. This variant has become popular through the Raska region (a part of the so called “Sandžak” in the Republic of Serbia), because the Muslims in "Sandžak" and the Muslims in Bosnia and Herzegovina are identical in terms of ethnicity and language, therefore the cultural ties of these areas are traditionally deep.

3.4. The Wahhabi Movement in Albania

Kosovo and Metohija served as the fertile ground for the Wahhabi movement to spread in the northeastern part of Albania, i.e. among the Sunnis in that country. Bearing in mind that various Sufi – dervish orders within the Sunni Islam have considerably been strengthened over the few past years (often with the financial support of the most powerful Islamic countries), and due to extremist activities of Wahhabis, the society in the Republic of Albania gradually entered the state of religious chaos. Not hesitating to use extremist methods, the Wahhabi movement wishes to gain the religious dominance in this country at any cost.

It is difficult to say the exact number of Wahhabis in Albania, but the current estimations indicate that the number of Wahhabism followers surely goes beyond one tenths of the total Sunni population, which makes about 200,000 of the population. Wahhabism in Albania is particularly spreading fast in rural areas, notably in the mountains in the north of Albania, where the mosques have been closed for nonbelievers, which includes the governmental authority itself. The Islamist activities in Albania are mainly focused on the area surrounding the towns of Elbasan and Librazhd, and the northeastern region towards the border with Kosovo and Metohija and Macedonia. In Albania, the radical type of the Wahhabi movement is predominant, and this is confirmed by countless examples of extremist activities, mainly expressed in the work of Wahhabis within humanitarian organizations, and individual forms of terrorist threats that are visible to a great extent. It happens very often that Islamic humanitarian organizations cannot work independently, but have to be close to extremist and terrorist organizations to coordinate a mutual strategy. Unsuitied religious leaders are most often replaced or removed violently and “new guys”, who studied theology in the Middle East, are put in their places. Over the last few years, the work of several key Islamic foundations has been forbidden because of proven connections with terrorism: Al Haramain, the World Organization of Islamic Support, the Revival of Islamic Heritage and others.

At the beginning of this decade, Albania was gradually taking over the primacy from B&H and it stands out as the center of Wahhabism in the Balkans, with the inconsiderate strengthening of religious, economic and political connections with the self-proclaimed state in the south of Serbia, the so called “Kosovo”.

3.5. The Wahhabi Movement in Macedonia

The Islamic religious community in Macedonia has incessantly been sending warnings about adverse activities of Wahhabis, whose followers are trying to take control over the key mosques in that country. Those who are adept at this problem say that their presence in a big number was recorded during the armed conflict in that country in 2001, mainly in the region of Kumanovo and Lipkovski. The authorities in Skopje are still pointing out that at this moment the Wahhabis do not pose a threat to the security
of the state and citizens, but their dislike of the Christian population and even Muslim compatriots is evident.

Whilst orthodox and catholic Christians are being targeted in Kosovo, in Macedonia Wahhabis often attack Sunni mosques and Shia tekyehs (the places designed for gatherings and prayers) and “take” them for their needs. In the “taken” mosques or tekyehs, there is always a Wahhabi imam who preaches the Wahhabi Islam. The believers who do not want accept this doctrine and those who do not want to go to the “taken” mosque or tekyeh are pressurized to be “expelled from the neighborhood” i.e. “expelled from the village” in which “power” was taken over by Wahhabis.

The recipe for successful expansion of Wahhabism is present in Macedonia as well, because it is sponsored by foreign funds, which are evidently more important than the true faith. The topics about radical branches and about the struggle for predominance within the Islamic religious community of Macedonia and about attempts of installing fundamentalist currents among the Muslims, are mentioned in Macedonia from time to time, but most often the topics are the consequence of pre-election arguments between the largest political parties of ethnical Albanians in their struggle to win votes among the Muslim population and to prove loyalty to Macedonian partners in power and to representatives of the International community.

The citizens of Macedonia are poorly informed about the existing threat of Wahhabism, which is the result of false political marketing as well as poor dissemination of information of the Islamic religious community. The reason for this is the fact that the State Security and Counter-Intelligence Administration are permanently convincing the members of the parliamentary Security Commission that the Wahhabis are present in Macedonia but that they do not cause any problems and that they do not pose a threat to security.

3.6. The Wahhabi Movement in Croatia

The role models to the Wahhabi movement in Croatia are the Wahhabis from the region of Kosovo and Metohija, and the Croatian Wahhabis use the term of endearment calling them “exemplary Kosovar Wahhabis”, because they want their movement to have the similar expansion in this country. Bearing in mind that the Wahhabis of Kosovo come from the geo-space where the Shias are in power and that they were rapidly established over the past few years, when Iran and Shias are on the rise in the Islamic world, it seems that the Wahhabis in Croatia want to apply the same model.

Aside from the said model, the Wahhabis in Croatia are trying to reach not only the poorest population but also wealthier social classes, wishing to popularize this movement by following the example of the best-known Shia extremist organizations.

The mentioned facts and aspirations of the Wahhabi movement indicate a possible growth in complexity of intelligence and security affairs in Croatia and a need for undertaking preventive actions in order to provide security to citizens. Besides the growth of the Wahhabi movement, the particular problem for Croatia is migrant waves going through its territory for months. The permanent problem is the lack of awareness that in the near future Croatia may be targeted by Islamic terrorists.

Although the Islamic factor is poorly present, the role of the Islamic community in Croatia is disempowered and marginalized. Croatia is permanently trying to conceal the neglect of religious freedom, primarily for the Serbian national minority, which additionally has prevented it to draw attention to the fact that Wahhabism has been
knocking on its door. The interests of Wahhabis for Croatia are becoming bigger, because they find this country to be the entry gate to the countries of the crusader west. According to estimations made by Croatian security services, there is no reason to panic right now.

According to data available, in Croatia at this moment there are between 50 and 70 people who are qualified as extremist Islamists, and Pula, Rijeka and Zagreb are the places where they operate. These extremists are closely connected with radical currents in the Wahhabi movement and they are being watched by security services, which indicate that no extremist activity leading to potential terrorist acts has been observed so far.

By analyzing the financial standing of the Muslim population in Croatia, it has been observed that the members of the Islamic community belong to a more educated and wealthier social class and therefore it is difficult or almost impossible to recruit them to accept radical Wahhabi attitudes. Besides the members of the Muslim community, poor Christians are targeted as well, and they are persuaded to convert to Islam.

The Wahhabi movement is a newly created security threat for the Western Balkans, because it is gradually disturbing relations established among the nations and is reopening already healed wounds of the past wars. The Wahhabis have found the fertile ground for spreading Islamic fundamentalism among the poorest citizens of the Western Balkans, aspiring to lure them as much as possible with financial injections and not hesitating to use radical extremist forms while doing this. The intensive spread of Wahhabism in the Western Balkan region calls for alertness and attention, not only of state bodies but also of entire population, first of all because of an increased recruitment and participation of a significant number of the most extreme Wahhabis (Bosniaks, Muslim and Albanians) in fights for the Islamic State.

4. PARTICIPATION OF THE WESTERN BALKAN WAHHABIS IN FIGHTS FOR THE ISLAMIC STATE

Historical facts suggest that the disturbance of religious harmony and national awareness building inevitably lead to conflicts and wars, with ex-SFRY, North Africa and the Middle East as good examples because these are multiethnic territories where various religions intertwine. From the religious point of view, the conflicts in the Middle East are particularly specific, because the core dissatisfaction is based on different adherence and comprehension of faith, Islam in this case.

Fierce clashes among various factions of rebels against Bashar al-Assad have been going on for some time in Syria. On one side, there are members of the radical Islamic State of Iraq and Levant (ISIL) and several similar rebel groups, and on the other side there is the Free Syrian Army and other “moderate” rebel branches. The Extremist Islamic Front and Al-Nusra Front split up, and some parts of them joined ISIL while two brigades joined the adversary. Conflicts between rebels and al-Assad’s forces are still going on, and numerous gangs are devastating the country using the faith, ideology, nation and other reasons as justification for plundering and killing.

A lot of people who are the members of terrorist organizations working for the Islamic State are citizens of some European countries, and some of them were either raised or born in the Western Balkan countries. But, such a difficult situation makes the work of police and security services more complex, because it is difficult for them to trace terrorists and to put them under control. The Islamic extremism rejects the Western
European culture, but it does not reject the Western technology. Development of information and communication technology has enabled radical Islamists to use fast dissemination of propaganda, clear correspondence and to make easier recruitment of fighters for the Islamic state from all Western Balkan countries. Participation of Wahhabis in fights for the Islamic state has been proved by all security services from the Western Balkan countries. The data of Western intelligence services indicate that the best response of fighters for the interests of the Islamic State comes from Kosovo and Metohija, and it is no wonder when we have in mind a quantity of financial support which this southern Serbian province received from Islamic charities. After Kosovo and Metohija, the Wahhabis from Albania and B&H stand out with the number of fighters for the Islamic state, while the Wahhabis from the Raska region and Montenegro participate in a small number.

The creation of the Islamic state, as a new form of Islamic terrorism, has additionally complicated the work of security services on preventing the spread of terrorism in Europe. When Al-Qaeda was in charge of Islamic terrorism, militants found it difficult to become a part of a terrorist cell. Al-Qaeda cells prepared new fighters only after strict tests, after which newcomers would be introduced to the terrorist ideology of Al-Qaeda and prepared for terrorist acts [3]. This required a lot of time, and security services had some time to break terrorist cells and prevent terrorist attacks. The Islamic State has a completely different strategy. There is no security check, because it is enough for a person to say that he is a follower of the Islamic state and to find a way, either via the Internet or some mosques in Europe, to contact someone who will send him to Syria or Iraq. Upon the arrival in the Islamic State, and after a short military training, people are sent to fight or they return, without any problems, to Europe with clear instructions.

In this perspective, the security of the Western Balkans is not threatened to a great extent in the process of recruiting people and sending them to fight for the Islamic state, but the general security might be disturbed when they return from battlefields. If, in the so called Islamic state, the situation turns over in favor of the opposition fighters, and legal representatives of the Syrian authorities are removed from power, not only the return of “local Wahhabis” in a big number is expected to the Western Balkans but also the arrival of “uninvited guests”. This type of scenario had been prepared for a long time in B&H, and it became apparent soon after the beginning of the civil war in SFRY. The fast-growing religious extremism in the Western Balkans, together with Islamic radicalism, disturbs the existing religious tolerance and can cause new local conflicts in the region and a wider geo-space, for which the civil war in Syria is an obvious example.

5. CONCLUSION

Islam is one of the largest religions in the world which gave dignity and meaning of life to the poorest Muslims, expressing a series of positive and progressive ideas in development and achievements of the human mankind. However, Islam, like other religions, faced periods of time in which it encouraged feelings of hatred and violence with some of their followers. With aspirations going towards the globalization and democratization of the world, great powers did not control religious views, and this resulted in the emergence of destructive movements in all spheres of spiritual life, among which Wahhabism stands
out. Over the past 20 years, this movement has rapidly been spreading in the Western Balkan countries.

After the end of the civil war and signing the Dayton Agreement, Bosnia and Herzegovina gradually became the center for gathering Wahhabis in the Balkans. After the NATO aggression on the Federal Republic of Yugoslavia, Kosovo and Metohija took over the dominance from B&H. In Kosovo and Metohija, the Wahhabi movement has developed beyond all expectations of declared mentors. Although B&H has been pushed to the background, the presence of Wahhabis in this region is still high, which makes the development of the Wahhabi movement still possible. Bearing in mind the previous experience about the activities of this movement, the B&H security services have indicated a permanent possibility of Wahhabism radicalization in the near future, which can considerably disturb the security and deteriorate relations between the Christian (Serbs, Croats) and the Muslim (Bosniaks, Muslims) citizens.

Serbia, in an unbreakable bond with the Serbian Republic (Republika Srpska), has a central role in confronting the fast-growing Wahhabism. Intertwining of cultural, political, economic and historical influences has made bonds between Serbia and Republika Srpska stronger, although there were attempts to degrade the Serbian national corps through the ended civil war in ex-Yugoslavia. The local and the world public are familiar with the fact that the Serbs are the most western Orthodox nation who is going through hardships in order to survive in the region where they have been living for centuries, and they find the fast-growing Wahhabism only another obstacle to overcome. By having a look on the current international relations, it is obvious that the said problem will be solved, because several power centers need to be satisfied.

Albania is fully aware of the current socio-historical facts in the Western Balkan region and international relations in the world, and it tries to take advantage of the Wahhabism expansion and demographic explosion of Albanian (Islamic) population to the detriment of neighboring Orthodox (Christian) nations, including the territorial pretensions through the project of the so called “Big Albania.”

Over the past few years, with the Islamic state becoming stronger, a possibility has arisen that “Muslim brothers from the Middle East” can help in achieving the separatist goals in Serbia, Bosnia and Herzegovina, Macedonia and Montenegro. It is particularly indicative that the Wahhabis are recruiting and sending fighters to Syria and Iraq to fight for the interests of the Islamic state. By analyzing indicators of Wahhabi activities and presence of foreign factors in the Western Balkan region, it has been seen that radical Islamists aspire to make damage to the territorial integrity and to enable secession of parts of territories from the home countries. The Wahhabi movement in the Western Balkan countries, in B&H, K&M, the Raska region (the so called “Sandžak”) and the north of Macedonia, has been used, under colour of “purification and unification all Muslims”, to start the propagation of radical Islam and to make ground for the influence of Arab countries and Turkey in this part of Europe.

By analyzing the Western Balkan region with respect to Wahhabism, two interconnected courses of Wahhabism development can be seen, and in both of them, the national identity is more dominant than the religious one. More precisely, a good connection is seen between the Wahhabis from B&H and the Wahhabis from the Raska region (the so called "Sandžak") as well as a high interdependence between the Wahhabis from Kosovo and Metohija and the Wahhabis from Albania and Macedonia. The Bosniaks are more dominant in the former current and the Albanians are more dominant in the latter one, which is a contrast to the spiritual and religious unity which Saudi Arabia wishes to establish together with other mentors in this region. More precisely, in the Western
Balkan region, Wahhabism is gradually being developed in accordance with the “Balkan rules”.
Having in mind the socio-historical development and the structure of population, Serbia and neighboring countries are incapable of addressing the problem of the ever-growing Wahhabi movement without the assistance of the international community, primarily the leading great powers. Not undertaking any measures and being the international community a silent bystander can result in the vast expansion of the Wahhabi movement in this region and uncontrollable chain reactions along with the outbreak of possible catastrophic conflicts between the Christian and Muslim population. The only justification for such behavior of the international community can be found in the anticipation that there will be an open conflict between the religious conservatism and aggressive globalization, which ruthlessly and brutally will crush all foundations of radical movements, including Wahhabism. The ultimate goal will be to annihilate separation of nations by religious, territorial and other principles, which have suppressed scientific development and social progress so far.
Besides the Western Balkan countries, Wahhabism is spreading to the Eastern Balkans as well, first of all to Bulgaria and the European part of Turkey. The Wahhabis do not want to stay in the Balkans only, but they are using the strategy for further expansion to Central Europe. Their main focus is the Muslim Diaspora in the European Union, in which Germany stands out as their favorite destination.

LITERATURE
POSIBILITIES FOR USING SHIPS AND BOATS OF RIVER FLOTILLA OF SERBIAN ARMED FORCES IN EMERGENCY SITUATIONS

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Abstract: The increasing frequency of natural disasters, as a result of abrupt climate changes caused, in addition to the civilian forces that react in emergency situations, increase in use of the units of the Serbian Armed Forces. An active and decisive role in providing assistance to civil authorities, particularly in terms of the protection and rescue of people and material goods in the event of major floods, definitely belongs to ships and boats of River Flotilla of the Serbian Armed Forces. Knowledge of the basic purposes, maneuverability, capacity and the way in which they can be used most effectively is the basic prerequisite for coordinated and energetic response of forces during crisis situations. The main objective of the work, just from the foregoing reasons, is to present the possibilities for the use of ships and boats of River Flotilla and to introduce the other subjects of integrated system for protection and rescue to the potential of River Flotilla in emergency situations.

Keywords: river flotilla, ships, boats, protection and rescue, emergency situation.

1. INTRODUCTION

The catastrophic earthquakes, droughts and floods are a constant high security risks for the Republic of Serbia. The fight against natural disasters, whose consequences are manifested on all spheres of social life, requires the involvement of many government and social organizations in the field of protection and rescue. A growing number of subjects that deal with emergency situations dictates the need and effort for harmonization of their functions in a unique and synergistic response, which has to be effective and meaningful. River flotilla, as an integral part of the Army, is an unavoidable subject in the rescue of people, protection of the environment and society as a whole, during various natural disasters.

2. EMERGENCY SITUATIONS AND SERBIAN ARMED FORCES

A problem to clearly and theoretically define and understand of the term "emergency situation" today, when each country faces a number of risks and dangers, is one of many problems that hinders effective and efficient functioning of all stakeholders in protecting and rescuing people, material goods and the environment. More frequent and more devastating accidents, natural disasters and other forms of threats to people and society imposes the need for a legal instrument, according to which the state intervenes in situations when the basic conditions for life and work are threatened, to be clearly
defined and clarified. In foreign scientific literature different definitions of an emergency situation can be found. Thus, for example, in the Anglo-American literature the term state of emergency is used, which is linked to the term emergency situation, but with a somewhat narrow and specific contents which primarily include a condition that is introduced due to natural disasters that threaten to jeopardize the normal functioning of life in the territory or in the whole territory of the country. [1] In the Russian literature stands out in particular the term чрезвычайная ситуация - a special, remarkable, an exceptional situation. Чрезвычайная ситуация is a condition in which there has been a distortion of the normal conditions of life and work in buildings or in a given territory, caused by disasters, natural disasters, environmental accidents, epidemics, etc. which can lead to human and material losses, damage the health of the people, nature and the environment, represent significant material losses and disruption of life and work. [7] Therefore, based on these findings it can be concluded that under the emergency situation we mean the state of jeopardizing the lives and health of people, endangering the material goods and the environment due to the effects of natural disasters, technical and technological disasters and accidents caused by the war and terrorism. These states can’t be prevented and can have, by their scope and the intensity of impact, consequences that can endanger the regular functioning of the system and requires switching to an extraordinary way of organizing certain subjects and a special mode of functioning of the system, which includes engagement of large material and human resources. [2] Constitution of Republic of Serbia defines the place and role of the Serbian Armed Forces, whose main purpose is to defend the country from external armed threats, and perform other missions and tasks in accordance with the Constitution and the principles of international law regarding the use of force, but also the possibility of its use beyond national borders. However, the increasingly frequent occurrence of natural disasters requires, in addition to the civilian forces engagement, the use of units of the Serbian Armed Forces in providing assistance to civil authorities in the common fight against the devastating consequences caused by strong earthquakes, snowfall, drought or severe flooding. [2] Doctrinal provisions, in addition to war and emergency, enable the possibility of using the Army in peacetime, but unlike combat operations, where the Army has a leading role, in non-combat operations has the role of support to other forces of the defense system.[4] The need to establish cooperation and coordination with state authorities who manage and rescue forces in the affected area is particularly emphasized and so is the use of a fully trained and equipped units of the Serbian Army.[6] So, the Serbian Army is definitely a one of the decisive factors in the comprehensive fight of all actors for protection and rescue, who engage in emergency situations. However, it appears that as a problem is the fact that the Army is still treated as a holder of tasks in the field of protection and rescue, and not as an entity that is an aid to civilian power structures and used only when all alternatives have been exhausted. For these reasons, it is necessary to build system of civil protection forces with strength and capabilities to perform all tasks during emergency situations, so Serbian Armed Forces and other state subjects would have supporting role and extreme situations.
3. RIVER FLOTILLA OF SERBIAN ARMED FORCES

River Flotilla specificity, compared to other forces of the defense system, is its attachment to the waters of the coastal area during the execution of the largest number of assigned missions and tasks. The task of "Assisting civil authorities in responding to natural disasters, technological and other disasters" River flotilla executes through planned and organized activities in locating and rescuing people, material goods and animals, the evacuation of the population and moving things in the safe zone, the distribution of aid, isolation of endangered zone, taking care of the wounded and sick, providing medical aid, firefighting, transportation, construction of embankments, providing important hydro-navigational objects, rebuilding the infrastructure and other activities on removing the consequences of emergency situations.[3]

3.1. The term, purpose and tasks

River flotilla is the unit of the Army. It integrates river and engineering units into a functional entirety, for the execution of assigned missions and tasks on the inland waterways of the Republic of Serbia. Tasks are executed independently or as part of Army or other defense system forces operations. Basic assigned tasks, for which the command and subordinate units train and rehearse, and regarding the execution of the tasks of the three missions of the Serbian Armed Forces are defending inland waterways, support forces of the Army and other security defense system forces defense in operations conducted on rivers, canals and lakes, as well as search and rescue operations on rivers, canals and lakes. However, the increasing frequency of natural disasters and declaration of emergency situation on the territory of the zone of responsibility of the River Flotilla, caused increased significance of River Flotilla in the implementation of the tasks of search and rescue.

Based on the above presented, it can be concluded that the River flotilla in emergency situations, especially when it comes to threats to people and property due to the effects of the flood, because of its specific features, plays an important role in preventing, alleviating and eliminating the consequences of natural disasters. This specificity is primarily reflected in the availability of different ships and boats, alleviating and eliminating the consequences of natural disasters. This specificity is primarily reflected in the availability of different types of ships and boats.

3.2. The composition and organization of River Flotilla

According to the doctrinal solutions River Flotilla is consisted of permanent and reserve composition. Permanent composition consists of professional Serbian Armed Forces personnel and conscripts: officers, non-commissioned officers, professional soldiers, civilian personnel serving in the River Flotilla and soldiers on voluntary military service. Reserve composition of River Flotilla is divided into active and passive reserve. Active reserve includes soldiers, NCOs and officers in reserve that represent the core of River Flotilla in peacetime, in order to ensure the necessary capacity to execute tasks in a given period. Passive reserve includes soldiers, NCOs and officers in reserve to fill units of River Flotilla in wartime.

According to the structural organization of the Serbian Armed Forces, River flotilla belongs to the Army, which in its composition integrates branches and
services. Branches in River Flotilla are river units (vessel and diver) and engineering (Amphibious and Pontooneer) organized in river detachments and pontooneer battalions. Services in River Flotilla are grouped in general (human resources, communications, intelligence, security, informatics, financial, legal) and logistics services (technical, quartermaster, transport and medical). According to the functional organization of the Serbian Armed Forces, River flotilla is a unit of permanent structure, organized at the tactical level, brigade level and by purpose can be organized in reaction force or the main defense force. Reaction force is consisted of professional, modernly equipped and capable units of River Flotilla with high degree of development, which is the basic reaction force to security threats on inland waterways.

4. USE OF RIVER FLOTILLA’S SHIPS AND BOATS IN EMERGENCY SITUATIONS

Emergencies situations declared under the threat of flooding water masses from the riverbed requires the use of specific means in the form of ships and boats. Without them, because their primary purpose, maneuverability, capacity and specifics of the environment in which they are used (rivers, lakes, canals, etc.), is unthinkable to successfully fight against natural disasters caused by floods. Tasks typical for the third mission of the Serbian Armed Forces are defined through the doctrinal documents of different hierarchical level. According to these documents the basic tasks of Serbian Armed Forces in the course of providing assistance to civil authorities during emergencies can be classified into: reconnaissance and data collection, the evacuation of the population, distribution of basic foodstuffs and provision of health services. Assigned tasks, in accordance with the doctrinal solutions [5], units of the Army, are executed primarily through the timely identification of unarmed threats, efficient use of forces to reduce the impact of threats and activities on mitigation of consequences of threats. Identifying unarmed threats implies its timely detection and assessment of consequences. It is carried out by survey and collecting data from the field. When it comes to flooding in the function of reconnaissance and gathering information from the field River flotilla can use the following means: diving boat type Zodiac/GDQ 120A and river patrol boat type RPB-211. Diving boats are multifunctional watercrafts designed to support diving activities as well as for rapid longitudinal and transverse transporting of people and things. Its length is 4 to 6 m and the speed of the boat is 22 to 30 knots, ie. from 40 to 55 km/h, and the total number of people who can board the boat ranges from 5 to 8 persons. The excellent characteristics such as: high speed, ease of handling, comfort, excellent sailing performance and exceptional stability are the main reasons why this boat is the means used to implement various tasks in the rivers, lakes and canals. It is particularly suitable for reconnaissance of inaccessible parts of the inland waterways because of its shallow draft and possibility of easy transport to endangered area. Also, due to the low weight, short size and the ability to be quickly and efficiently dismantled, it can be easily transported by land using an appropriate vehicle. However, little autonomy of navigation, the small size of the fuel tank, necessitates that this vessel is used only for short journeys. For these reasons River Flotilla, for long range patrols and reconnaissance uses river patrol boats (RPB). River patrol boat type RPB-211 is equipped with a depth finder, means of communication and radar type DECCA RM 110, and powered by two internal diesel engines of 425 kw. The speed of navigation is 25/30 km/h, draft of up to 1.3 m, crew of 7 members and has autonomous navigation to 7
days. These characteristics RPB classified as assets to be used for the purposes of search and rescue, over a longer period of time, and for the collection and submission of the required data from the field in real-time to different users. Information such as: the status of the waters, the depth, the tendency of water levels, the possibilities of navigation, threat to hydro and other facilities in the waterways, then information about the state of levees, submitted to the different subjects such as headquarters for emergency situations is of great importance because it provides objective visualization of the operating environment and making correct and timely decisions related to the engagement of available forces and means. Reducing the impact of threats involves the creation of conditions for the successful implementation of the planned activities of the Serbian Armed forces in the course of providing support to civil authorities during natural disasters, industrial and other accidents and epidemics. It is realized by: specifying the elements of coordination with civilian structures, bringing the forces and means to the affected zone, force protection, logistics support and other tasks that create favorable conditions for achieving the desired effects.[6] River Flotilla important role when it comes to reducing the impact of threats, has primarily through the implementation of the task of bringing forces to the endangered area by assault ships (DJB). Assault ship is equipped with depth finder, means of communication and radar type DECCA RM 150, powered by a two internal diesel engines of 640 kw, with the speed of navigation 45/60 km/h, draft of up to 1.1 m, crew of 6 members, has autonomous navigation to 4 days. Due to its excellent transport capacity, has the ability to transport up to 80 people, ideal for the realization of the task of bringing forces to the flooded areas, as well as to logistical support in the form of transportation of various materials (sandbags, aggregates, medical materials, foods, etc vitally important). Activities in eliminating the consequences of threats is the key task for the forces of the Army in non-combat operations. They are realized through decisive non-combat activities of the Army during the operation and the stabilization phase, such as: providing assistance to civilian authorities during the evacuation of the population, the distribution of aid, isolation of endangered zone, taking care of the wounded and sick, sanitization of endangered zone, firefighting, transportation, construction of embankments, restoring infrastructure and other tasks specified by the elements of coordination between the Army deployed forces and civilian structures.[6] In the phase of eliminating the consequences of natural disasters - floods, River flotilla may engage following river and a pontoon means: a boat with solid hull type RIB 720 "Cando", the amphibious transporter type PTS-M, mobile pontoon bridge PMP and command ship BPN-30 "Kozara". Boats with solid hull type RIB-720 "Cando" are used for fast and safe evacuation of the affected population, with basic characteristics as follows: length 7.20 m, width 2.85 m, the diameter of the tube: 0.54 cm, mass without the motor 815 kg, the maximum load capacity of 3600 kg, the maximum number of people in the boat 13, powered by a four-stroke outboard motor 150 hp with a top speed of 70 km/h. It is characterized by excellent maneuverability and extraordinary stability on the water that it gets thanks to the longitudinally installed flexible tube which is usually made up of five separate air chambers. In addition to this vessel, for the evacuations of a flooded area is also used amphibious transporters PTS type-M whose basic characteristics are as follows: is powered by a diesel engine of a 250 KW, the speed of navigation/driving under the full load 11/42 km/h, has a draft of up to 1.2 m, crew of 2 members and has an action radius of navigation/driving under full load 15h/500 km. Due to its excellent transport capacity, the ability to transport up to 70 person, or 10 tons of cargo, but also because of the fact that it can be used on water and on land, this vessel is ideal for the realization of the tasks of bringing forces to the
flooding areas, the delivery of essential food items, as and other forms of logistical support in the form of transport sandbags, generators, medical supplies, food and other vitally important items. During major floods bridges are particularly vulnerable, whose non-functionality, which was the result of the effect of floods, can be compensated using a mobile pontoon bridge PMP. PMP is a tool with which River Flotilla has and whose main purpose when it comes to eliminating the consequences of floods, is precisely to ensure effective overcoming water obstacles by building pontoon scaffold or pontoon bridge. Basic features pontoon scaffolds are made of pontoon articles, scaffolding capacity from 40t to 150t, the length of the scaffold from 14 m to 53 m, the number of people to enter into the scaffold from 8 to 24 and the time of the conclusion of 8 to 20 min. Basic characteristics of the pontoon bridge are: made of the pontoon articles, capacity of the bridge 20t to 60t, the length of the bridge of 227m to 382m, the number of people for the development of the bridge 101 and the preparation time for 50 min. For the purposes of acceptance and accommodation of evacuated population River Flotilla may provide command ship BPN-30 "Kozara" whose capacities up to 250 people that can board the ship for accommodation and first aid. Also at BPN-30 there is a possibility of forming a medical station, whose main role is to provide expert medical help evacuated residents.

5. CONCLUSION
Implementation of protection and rescue in emergency situations is a complex and demanding process that requires active and coordinated involvement of different forces. Timely, safe and effective response to the threat is realized primarily by synergistic approach of all participants. For something like that, one of the basic prerequisites is the understanding of the subject's ability to be used during natural, technological and other disasters. By engaging different types of ships and boats River Flotilla is giving a huge contribution to the realization of many tasks such as scouting and collecting data from the surveillance zone, the evacuation of the population, distribution of basic foodstuffs and provision of medical assistance. Also, the use of these specific vessels allows universal and flexible approach in dealing with unpredictable, dynamic and complex tasks. This gives new dimension to the response on possible threats and dangers during major floods.

LITERATURE
Abstract: The rise of a new threat to global security in form of proliferation of weapons of mass destruction and its financing resulted in the need to take coordinated measures to protect the integrity of the international financial system and implement them into national legislation. Even though proliferation is close to the issue of terrorism with regard to terminology and basic characteristics, the primary goal of its prevention is achieved by the application of anti-money laundering measures within the framework of the risk based approach basic principles. Collected information about clients and transactions are confidential and are processed and treated using applicable screening and further monitoring measures. They need to be exchanged with competent institutions on the national and international level, financial intelligence units and the private sector. Key similarities with the anti-money laundering and terrorism financing issues will undoubtedly set the pace and direction of the measures for the prevention of proliferation and its financing, while emphasising its particularities which require specific treatment. This work has been supported by the Croatian Science Foundation under the project number UIP-2014-09-5933 “Legal and Economic analysis of Anti-Money Laundering and Terrorist financing system”.

Key words: money laundering, terrorism, proliferation, financing, risk, financial sanction.

1. FOREWORD

The protection of international peace and security, as well as the security of the financial system as a whole, is achieved at a new area of financing of the proliferation of weapons of mass destruction (hereinafter: proliferation). The term "proliferation" refers to the manufacture, acquisition, possession, development, export, transhipment, brokering, transport, transfer, stockpiling or use of nuclear, chemical or biological weapons and their means of delivery and related materials (including both technologies and dual-use goods used for non-legitimate purposes), in contravention of national laws or, where applicable, international obligations. It includes technology, goods, software, services or expertise. The need for criminalisation of the proliferation financing activity such as the act of providing funds or financial services which are used, in whole or in part, for all segments of proliferation activity is the result of the fact that the movement and development of such items can contribute to global instability and may ultimately result
in a loss of life, if proliferation-sensitive items are deployed. Factors driving terrorists to use weapons of mass destruction can be viewed through consequences of their actions in terms of mass victims, disruption of normal life in cities, closure and pollution of buildings, panic, confusion and distrust of governments when it comes to the protection from terrorist activities [3]. In order to gain comprehensive understanding of the scope and meaning of the term proliferation and its financing, the second chapter of this paper following the introduction discusses the legislative basis of its prevention. The third chapter covers the issue of its correlation with the money laundering and terrorist financing issue, while the fourth chapter looks at the risk based approach for the prevention of proliferation financing. The fifth chapter focuses on the importance of exchanging collected information and the sixth chapter offers final thoughts on the subject.

2. BASICS OF PROLIFERATION AND ITS FINANCING PREVENTION

The issue of preventive actions in the area of proliferation and its financing has been regulated by numerous United Nations Security Council Resolutions (hereinafter: the UNSCRs) and The Financial Action Task Force (hereinafter: the FATF) Recommendations. The FATF is an inter-governmental body established in 1989 which provides 40 Recommendations with legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system. The first set of Recommendations was issued in 1990, and revised in 1996, 2001, and 2003. The final revision of the FATF Recommendations from 2012 was prompted by the need to establish efficient and coordinated measures for the protection of the international financial system integrity due to constant development of money laundering and terrorism financing methods and techniques. Contents of the Recommendations represent a turn towards money laundering prevention with enhanced risk based approach, focusing on the financing of the proliferation, international co-operation, higher operational standards, measures to combat corruption, improved transparency of information about the beneficial ownership, trusts, and other legal persons or arrangements, tax crimes, and new payment methods. Combating proliferation is carried out by implementing repressive measures, such as export control system regulations, regulatory reporting requirements, targeted financial sanctions, and trade sanctions. On the other hand, FATF Recommendations, especially Recommendation 7, suggest the implementation of measures preventative in their nature which is necessary for stopping the flow or use of funds or other assets to/by proliferators or proliferation. Based on the Security Council’s President Statement, 1992(S/23500), Resolution UNSCR 1540(2004), which has exceptional significance for this subject matter, was adopted. Related to non-proliferation in general, it is also important to mention UNSCRs 1673(2006), 1810(2008), and to specific countries of proliferation concern UNSCRs 1695(2006), 1718(2006), 1874(2009), 1737(2006), 1747(2007) and 1803(2008). These resolutions require countries to freeze without delay the funds or other assets of, and to ensure that no funds and other assets are made available, directly or indirectly, to or for the benefit of, any person or entity designated by, or under the authority of, the United Nations Security Council under Chapter VII of the Charter of the United Nations [7]. The first Resolution which had the primary goal to universalise export controls was UNSCR 1540(2004), previously implemented on a voluntary and national basis. It focuses on terrorism and each threat coming from the proliferation of nuclear, chemical and biological weapons and their means of delivery.
Resolution includes two obligations of states relating to the financing of proliferation: to adopt and enforce effective laws which prohibit any non-State actor in that kind of behaviour for terrorist purposes (including attempts, participation, assisting and financing them); and to establish, develop, review, and maintain appropriate effective national export and trans-shipment controls over certain items ... establishing and enforcing appropriate criminal or civil penalties for violations of such export control laws and regulations [5]. It is also important to point out that financial measures are an important supplement to, but not a substitute for, effective export controls. Export controls are used to inter alia prevent dual-use and other sensitive goods (listed and unlisted) from being exported to known individuals and entities that are involved in proliferation-related activities [8]. According to Special FATF Report Combating Proliferation Financing, financial measures are useful in that they specifically address the financial activity associated with proliferation, while export controls are focused on prevention of the illegal transfer of proliferation-sensitive goods and may affect financial activity as a secondary effect. Export control systems are continuously updated and expanded to incorporate new goods and technologies what forced proliferators to adopt a different strategy to select, where feasible, elementary components rather than complete subassemblies to elude authorities [9], [8].

3. RELATION TO MONEY LAUNDERING AND TERRORIST FINANCING MAIN COMPONENTS

Proliferation has more in common with terrorist financing than money laundering even though terrorism has much more diverse causes: political, economic, religious and cultural [1]. However, since proliferation consequences are mostly manifested in earning profit, its prevention can be achieved by anti-money laundering measures such as risk based approach in general: customer (enhanced) due diligence, transaction screening, and account monitoring. Effective implementation by financial institution protection against proliferation financing depends on access of information on proliferation risks, including general indicators and specific information on entities of concern. Despite the fact that proliferation support networks tend to depend heavily on the formal financial system, financial institution activity is still limited because it is not possible to look at the entire transaction and implement risk assessment measures. Obstacles are evident in the limitations due to technical expertise of banks, the limited information available as a basis for such controls and financial institution’s inability to examine whether such information is correct, the structural differences between money laundering and proliferation financing and the lack of clear financial patterns uniquely associated with proliferation financing, and the fragmented nature of the trade cycle [9]. Based on the above, it is possible to conclude that the scope of and contents of money laundering, terrorism financing and proliferation concepts require suitable prevention measures. Money laundering prevention measures aim to offer protection of integrity, stability of credit/financial institutions and confidence in the financial system as a whole from flow of illicit money, that threaten the internal market of the European Union and international development. Their application to the issue of the prevention of proliferation and its financing is possible, but has a limited reach. In order to achieve the above, it is necessary to distinguish risk based approach principles applicable to money laundering and terrorist financing risk, risk principles applicable to specific countries (such as Democratic People’s Republic of Korea and Iran), and at least criteria which may address the problem of proliferation financing in a general manner. Unrelated to the
specified differences, financial institutions may, in their limited scope, implement the risk based approach to identify high-risk customers and transactions. In the lack of suspicion of the proliferation activities competent authorities should work within their legal framework to provide additional relevant information to financial institutions in connection to names of specific entities and individuals of proliferation concern and end users of particular concern regarding items, materials, equipment, goods and technology prohibited under particular Security Resolutions (and information relating to the diversion of them), available typologies of proliferation finance, available red flags [12] of that kind of financial activity, and lists and/or characteristics of persons who have been granted or denied export licenses and associated transactional details. Specific measures for enhanced scrutiny of high-risk customers and transactions comprise collecting additional information about details of nature, end use/r of the item, export control information, information about wire transfers, and the purpose of transaction [6]. Apart from the limited scope of financial institutions activities, proliferation differs from money laundering as a crime in some other aspects as well. Beginning from the starting point of money laundering which may not exist without prior criminal activity, funds used in the proliferation process may derive from both criminal activity and legitimately sourced funds. Furthermore, the circle of persons involved and the proliferation process itself is not so comprehensive and complex as is the case with money laundering. In accordance with the above, with regard to money laundering prevention, financial institutions implement customer due diligence measures and a wide range of risk based approach measures which have a limited scope when it comes to proliferation. Distinctions are applicable to the area of sanctions as well. When a subject is sanctioned for proliferation, the obligation on regulated entities to comply with certain provisions are determined by these sanctions and are subject to a specific risk-analysis as required to comply with the same sanctions. Considering that such sanctions are made for specific risks and specific countries, they cannot serve as a model for developing a general risk-based approach to combat proliferation financing [9]. Recommendation 7, very similar to Recommendation 6, also covers the issue of the implementation of targeted financial sanctions and poses the same problems regarding freezing assets, without delay. While this idea is desirable in theory, the logistics required may cause problems in practice. The regulator is unlikely to have an authority to freeze the assets of a bank’s customer whereas the financial-intelligence unit or some other appropriately authorised body probably will have. Another issue this recommendation poses is the willingness of banks to freeze the assets of its customers [2].

3.1. Specific nature of targeted risk based approach measures

With regard to risk assessment, proliferation risk will depend on the scope of proliferation, depending on the profile and size of involved clients, type of business operations of monitored entities, countries and geographies involved in the proliferation, as well as business, products and services subjected to risk assessment [11]. In accordance with the above, higher risk areas are subject to enhanced procedures (enhanced due diligence procedure and enhanced transaction monitoring) with a main goal for the risk based approach to just assist financial institutions to effectively manage proliferation risk, rather than prevent it. Countries with a weak or non-existent export control represent areas of enhanced country or geographic risk, notably countries which are subjects to a relevant United Nations sanctions such as Democratic People’s Republic of Korea and Iran. Country risk includes information on countries of
proliferation concern, on commonly used diversion routes or economic zones with weak export controls. Despite the fact that country risk [4] is the most essential element of presented risk models in relation to money laundering and terrorist financing, this is not the case when evaluating country risk of proliferation which is reflected mainly in sanctions against countries of proliferation concern and in export licence requirements [9]. According to that, product or service risks refers to delivery of services to identified high risk areas or entities, project financing and complex loans where there is a presence of other objective risk factors, and delivery of financial services, including trade finance services, where there are other heightened risk factors, such as an identified end user of concern. Customer risk, which will be detected using the implemented customer due diligence procedures, is just as important. This segment will also include low and high risk customers, but the attention of financial institutions will be aimed at those whose activities may indicate a higher proliferation financing risk. That kind of customers profile can include: exporters engaged in transactions with end-users listed in national lists concerning high-risk entities (Iran End Users, Politically Exposed Persons – PEPs), end-user is a listed military or research body connected with a high-risk jurisdiction of proliferation concern, and the involvement of the customer in the supply, purchase or sale of dual use goods (Council Regulation 1334/2000, 428/2009, 1231/2011, 388/2012) which cannot be per se an indicator for a financial institution, although may be of some relevance if other risk factors have first been identified [9]. Dual-use goods destined for proliferation use are difficult to identify even when detailed information on a particular good is available, which consequently calls for highly specialised knowledge and experience [8]. Main characteristics of proliferation and the issue of its financing are reasons for the main difficulties connected with its context: a growing trend in the purchase and sale of elementary components, as opposed to whole manufactured systems; difficult identification of dual-use goods; complex networks through which proliferation-sensitive goods may be obtained, and risk of proliferation financing is more likely to be present in cases where the source of funds is legal and the end-user of a type of goods involved is obscured, making identification of such activities difficult [10].

3.2. Differences from money laundering and terrorist financing

Despite the perceived differences between the basic structure of the terms proliferation and money laundering, the implementation of the risk based approach measures for the prevention of its financing is identical in certain segments. The key correlation point is evident in the initial premise that there is no universal workflow of activities and that each measure is taken considering the specificities of individual clients and transactions. This will include type and nature of principal parties engaged in the transaction, duration and purpose of relationship, and overall transparency of relationship and corporate structure. As is the case with terrorist financing, one of the characteristics of basic proliferation financing measures is a limited range of action of financial institutions since without specific guidance, suitable typologies or acting on specific intelligence provided by the authorities, this not possible. However, it is realistic to assume that the establishment of a greater risk factor will require the implementation of enhanced due diligence, enhanced frequency of relationship reviews and senior management approval, as well as increased monitoring. Red flag connected to suspicious or unusual transactions is meant to be: payment values, volume of payments, countries of payment, originator/beneficiary names and patterns in relation to a country or entity name [9]. That kind of approach to mentioned issues can be implemented over automatic
monitoring, considering that alerts generated from these automatic systems are inevitably subject to some type of human intervention. Based on the established potential risk of proliferation, financial sanctions to banks and other financial institutions under Security Council Resolutions 1718(2006), 1737(2006), 1747(2007), 1803(2008), 1874(2009), 1929(2010) can be implemented and they are aimed at preventing new banking business and restricting any prohibited payments. What needs to be taken into account is that the application of financial sanctions affects the liquidity and solvency of a designated financial institution, increases the risks of insolvency and raises immediate issues of prudential concern. In case these sanctions are applied to banks, competent authorities should determine whether the designated bank has a presence in their country and whether the designation of the bank will cause fit-and-proper concerns relating to the banks directors or senior management, and consider whether it will cause other regulatory concerns such as systemic risks or other market impact [6]. Financial institutions that either identify or cannot resolve concerns regarding high-risk customers and/or transactions have to consider consulting with relevant competent authorities, terminating the relationship with the relevant customer or account, suspending the relevant transaction, pending further investigation or freeze designated entities funds and other assets without delay and prohibit provision of financial service. That freeze should include all funds or assets owned or controlled, directly or indirectly.

4. SIGNIFICANCE OF EFFICIENT INFORMATION EXCHANGE

Efficient and timely information exchange is another element for efficient prevention of proliferation financing. Wide range of information the financial institution has access to is collected based on money laundering indicators, proliferation financing indicators or some other typologies of the entities of concern. Collected information is then subjected to real-time screening and post-event account monitoring in order to implement a thorough transaction analysis and customer due diligence. Export control regime is based on lists of controlled goods as one way of collecting information [9]. However, it is a quite limited process due to the limited source of each available information. Even though it should be mentioned that some jurisdictions have intelligence agencies specifically tasked with identifying, analysing, and disseminating intelligence on individuals and entities who may be involved in supporting the financing of proliferation [5]. Another possibility arises from the lists of sanctioned entities, including those subject to targeted financial sanctions by the United Nations or jurisdictions on a national or supra-national basis for screening their customer base and transactions, in order to comply with obligations under sanctions regimes. The last one, advisory-lists, is specific one with emphasised named entities of proliferation concern. It is very similar to the list of sanctioned entities, which is why it is easier to apply it to systems preferring screening procedures. Even though it will not necessarily result in stopping or denying the transaction, it will certainly become the subject of the risk based approach and possible reporting of the suspicious transaction to competent authorities [9]. Information on proliferation risk and entities is subject to a high level of confidentiality. Competent authorities have to find an appropriate balance between efficient mechanisms of information sharing and legitimate issues of data protection for the purpose of ensuring compliance with, or to investigate contraventions of, national legislation to counter the financing of proliferation [5]. In this respect, financial institutions are expected to provide a current assessment about a specific situation regarding which information, with less sensitive nature, to share with the private sector. This exchange of information
refers to targeted entities or transactions, shared between financial institutions and the authorities in order to prevent proliferation financing. Restricted or security-vetted contact groups are focused to share information between financial intelligence units which my become relevant to an investigation in the future or in order to determine new money laundering or terrorism financing methodologies. The third type, limited distribution alerts, refers both to the financial intelligence units and export control authorities, and covers the widest range of information which may add to the overall risk profile client, transaction or country of consideration [9]. Based on the above arises that the efficient prevention of proliferation financing certainly depends on the efficient coordination among all relevant authorities for proliferation and proliferation financing, including export and customs/border control authorities, financial intelligence units and financial institutions, intelligence services, law enforcement and prosecution agencies, financial supervisors, trade promotion, and government policy departments/designations, having in mind that many jurisdictions have principles of privacy that restrict certain information being shared.

5. CONCLUSION

Taking into account the specific nature of proliferation, it is possible to conclude that the movement and development of such proliferation-sensitive items poses a very serious threat to global instability and immeasurable loss of life. Basic measures of its prevention are reflected in the implementation of the enhanced risk-based approach measures and efficient international co-operation, with the emphasis on the application of export control system regulations, regulatory reporting requirements, targeted financial sanctions, and trade sanctions at a national level. Due to the links between proliferation on one side and money laundering and terrorism financing on the other, financial institutions can provide application of a wide range of peculiar measures and develop a suspicion of proliferation financing through customer due diligence, risk assessment and internal controls, depending on different category of applied indicators, which, nevertheless, have a limited reach. Due to the fact that effective implementation by financial institution protection against proliferation financing depends on access of information on proliferation risks, it will depend on risk established in the scope of customer risk, product or service risk, as well as detected country and geographic risk. With a wide scope of applied measures, their efficiency will increase due to timely exchange of collected and processed information between the financial and other competent authorities and the public and private sector, while complying with strict rules of data protection laws. Assuming that proliferators operate globally with their mayor tasks, except profit, to mask their acquisition as legitimate trade, further development of detected risks can be anticipated and, consequently, the need for new ways to protect global economy.

REFERENCES


SIMULATION OF THE HOSPITAL STERILIZATION PROCESS

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Abstract: Established hospital processes present the backbone of the overall functioning of any hospital. When any of these processes require overhauling due to poor performance or cost efficiency it is necessary to ensure that new solutions do not jeopardize the safety of patients as well as present an obstacle for other processes. Simulation presents an option to foresee the impact of process renewal without actually changing the running process. This paper presents a simulation of the performed operation programme by simulating the performance of a planned central sterilization unit.

Keywords: healthcare, sterilization process, patient safety, simulation, process overhaul

1. INTRODUCTION

Hospital processes are focused on managing complete flow of logistics and medical issues that occur on regular basis in hospitals. While the main focus is naturally on the patients, there are various activities necessary to ensure that the patients receive their required care. During their treatment, patients can be subjected to various hazards, among which infections present the most dangerous [3]. Infections can occur due to not upholding hygienic standards of the staff and contact with other patients or visitors. Another important factor is the use of instruments during treatments. Reusable medical instruments require sterilization prior to being used on patients. This is especially important during operations where unsterile instruments can lead to difficult infections that may endanger patients’ lives [4]. Therefore, sterilization of medical equipment is one of the top priorities. The sterilization support service presents one of the key elements in keeping a hospital functioning. Medical procedures cannot take place without available sterile instruments. Various research on sterilization of medical equipment has been done. In [5] the authors analyse the combining of various instrument sets in order to optimize the sterilization service cost, which includes optimizing the number of individual instruments as well as their combinations into instrument sets. Another study [1] suggests using a centralized sterilization service for multiple hospitals connected in a network. Further research [6] compares centralization and decentralization of the sterilization process in a hospital. The importance of managing hospital logistics that includes sterilization is presented in [2]. The purpose of this paper
is simulating the sterilization process of a planned sterilization facility in the General Hospital Izola. While the planned central sterilization unit will manage sterilization the whole hospital compared to the current solution, the simulation is aimed to find out whether the new process can manage the workload with the focus on instrument sets used for operations. Simulation in this case provides an insight into the problems that might occur by renewing an established hospital process and how its influences on other departments.

2. THE CURRENT PROCESS AND NEW APPROACH

With ever increasing number of scheduled operations and other procedures that take place daily in the hospital it is necessary to provide sterile instruments for patient. The current solution is performing the sterilization on site after each procedure. With a limited number of the instrument sets, there is often a priority queue in order to provide the necessary instrument sets for following operations that require the same instrument sets. The hospital is equipped with two locations for sterilization that are located at the central operation block and the small operation block. These two manage the sterilization of the all operation rooms, departments, and doctor’s offices. While the latter can be usually supplied once or at most twice daily, the operations presents the critical problem. To ensure the safety of the patients as well as keeping the schedule to prevent increasing the waiting queues, the instrument sets need to be sterilized on time. The current process involved handwashing the used instruments, after which the instruments are sterilized in a sterilizer. As it is the central operation block sterilization handles the instrument set sterilization, while other departments and doctor’s offices are distributed between both sterilization units. This requires transportation of unsterile material to both units and distribution to the origin departments. With a tight schedule, the responsible personnel must ensure that the instrument sets are sterilized on time, which can often lead to stressful situations and can increase the risk of poor or incomplete sterilization.

The hospital’s intention is to establish a central sterilization unit for the whole hospital. With this approach, the complete sterilization will be physically detached from the operation blocks, which will introduce new transportation routes as well as prevent sterilization immediately following the operations. This will ultimately prevent performing sterilization as it done currently, and will require new protocols for handling the complete process. The location of the central sterilization will present delays for delivering unsterile material to the central sterilization unit as well as delivering the departments. Further, the sterilization process will not include handwashing of individual instruments, which will be first washed in a thermo-disinfector, after which the instruments will be sterilized in the sterilizer. To completely sterilize the instruments, the new approach introduces several delays that need to be considered. To check whether the central sterilization unit can provide the necessary instruments discrete event simulation has been applied.

3. THE SIMULATION

With the planned central sterilization unit, the hospital process will be drastically changed. This includes the logistics department that handles the transportation of the material and their schedule. In the first phase, it is necessary to measure the new routes,
or more precisely, the time that is required to deliver the necessary material to and from the central sterilization unit.

With all delays that occur due to the new sterilization process and transportation delays, the aim of the simulation is to explore whether the operations that took place within a period could be performed as they were by using the central sterilization unit. For this purpose, the delivery time to each department, as well as the central and the small operation block were measured. The second part requires acquiring the sterilization times of the new centralization unit. Finally, it is necessary to check whether the operations sets can be made available for each planned operation.

3.1 The input data

As department instrument consumption is not critical, their sterilization can be postponed for later hours. The critical problem present the instrument sets required for operations. For this purpose, it was necessary to analyse the hourly consumption. Therefore, the input data present a list of performed operations that includes information about the:

- operation type
- used instrument sets and their alternative combinations
- operation start
- operation duration
- operating room

The other necessary information is the list of all available instrument sets that cover trauma, gynecology, ophthalmology, urology, vascular, and abdominal operation among others. The instrument sets used per an operation can be unique, while others can appear in multiple instances. Table 1 shows an example of vascular instrument sets, while table 2 reveals examples of vascular operations and used sets and their alternatives, which can be from other designated areas.

<table>
<thead>
<tr>
<th>Table 1: List of vascular instrument sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument sets</td>
</tr>
<tr>
<td>Vascular net 1</td>
</tr>
<tr>
<td>Vascular net 2</td>
</tr>
<tr>
<td>Vascular net 3</td>
</tr>
<tr>
<td>Endoscopic vein removal</td>
</tr>
<tr>
<td>Amputation 1</td>
</tr>
<tr>
<td>Micro small</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Example of vascular operations and used sets and their alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
</tr>
<tr>
<td>17.10.2016 9:00</td>
</tr>
<tr>
<td>12.09.2016 8:00</td>
</tr>
<tr>
<td>22.09.2016 8:00</td>
</tr>
<tr>
<td>07.09.2016 12:00</td>
</tr>
</tbody>
</table>
3.2. Simulating the central sterilization unit

To analyse the operation programme it is first necessary to understand the performance of the central sterilization unit. The questions that arise are how many sterilization units (instrument sets or instrument kits) the facility can produce within given time. The system consists of 3 thermo-disinfectors and 3 sterilizers. The maximum capacity of the thermo-disinfectors is 10 units, while 2 sterilizers have capacities of 6 units and another one of 9 units. The system is depicted in figure 1.

![Simulation schematics of the central sterilization unit](image)

The service rate of thermo-disinfectors $\mu_t = 11.8$ /hour, while two sterilizers reach $\mu_s = 5.5$ /hour and one $\mu_s = 8.3$ /hour. With the given properties of the system the average sterilization cycle duration $T$ is 131 minutes, which is the expected time between a sterilization unit entering the central sterilization and its completion. By maximum arrival intensity the system can sterilize up to 17.3 units per hour on average. While full burden of the central sterilization is not expected at all times, the data of performed operation can give an insight into what arrival intensity ($\lambda$) can be expected. This however requires simulating the actual operation programme.

3.3. Operation simulation

Combining the operation data with the instrument set inventory the aim of this simulation is to find out whether the operations could be performed as they were in the past. For this purpose, the performed operations in a 3-month period were observed along their instrument set consumption. By considering the new sterilization process the simulation observed the duration of the operations and which sets were used. This allowed analysing if the instrument sets would be available for each individual operations. For each instrument set from the inventory the following states can occur:

- instrument set is available
- instrument set is in use
- instrument set is waiting for transport
- instrument set is being transported
- instrument set is being sterilized
- instrument set is waiting for delivery to the department
The simulation is performed by sorting the operations by the time of beginning. The discrete step between consecutive operations is determined, while all other time events are calculated as well. For each consecutive operation, it is checked whether the required instrument sets are available. If any of the required sets is given another status than available, the simulated operation does not take place. Following the use in operation, the instrument sets are assigned timestamps in order to define when the statuses of the set will change. While the timestamps for usage is defined by the operation parameters, others are defined by the times of transportation as well as sterilization times, which follows the central sterilization simulation. Transportation times are pessimistically set to 10 minutes, although the expected times are estimated around 5 minutes. Instrument gathering and distribution are arranged once per hour. The statuses of the instrument sets are implemented using lists, meaning there is a list of instrument sets for each possible status. The instrument sets are then exchanged between the lists based on their progress. In the beginning, all instrument sets are placed in the available list, after which the selected sets are taken out and placed into the list in_use. The instrument sets in this list are assigned time stamps that depend on operation duration. Each time step the list is checked whether an instrument set’s timestamp has exceeded it and in this case it is removed and placed in the waiting_queue list. Once transportation takes place the sets are taking from the waiting_queue list to the transportation, and then sterilization list, where they are assigned new timestamps depending on the sterilization times. When the current time step exceeds the timestamp of the instrument sets on sterilization they are moved into the distribution list, followed by transportation and finally moving into the available list. For each operation, the available list is checked if any combination of required instrument sets is complete. If any required set is found missing the operation does not take place, in which case none of the planned instrument sets are removed from the available list.

3.4. Simulation results

In this way, the operation programme can be simulated and effects of the central sterilization unit observed. Along with this, the programme simulation allows determining the expected arrival intensity of instrument sets to the central sterilization. By analysing the starting times and durations of the simulation the consumption distribution of the instrument sets is revealed as shown in figure 2.

![Figure 2: Hourly arrival intensity ratios](image)

As it can be seen the majority present an arrival intensity below 7 instrument sets per hour, which does not fill the central sterilization unit’s capacity, however there is a small
percentage of cases where the unit can be overburdened. It is to note that this presents
the fulfilled arrival intensity in a 3-month period, where there were only two examples of
completely filling the capacity. However, it is necessary to mention that this only applies
to the instrument set sterilization, as it is deemed that other instruments can be sterilized
in later times. Additional to the expected workload, the main goal of the simulation is
revealing the number of operations that could not be performed. Of the nearly 3000
operations done in the three month, about 13% would not have been possible according
to the simulation. The simulation revealed both the consumption of individual
instrument sets as well as the frequency of missing sets in case of missed operations,
which are not always correlated.

4. CONCLUSION

The presented paper describes a simulation approach to find the expected impact of
changing a working hospital process. Instrument sterilization presents a crucial process
and must satisfy the health standards to ensure the safety of patients. Guaranteeing
timely availability of sterilized instruments allows for performing the operation
programme as planned, not meeting the requirements may jeopardize the patients that
require immediate care. Another issue By performing a two-stage simulation where the
first stage is focused on the sterilization process, the latter stage was used to analyse
the impact of the renewed sterilization process on the operation programme. The simulations
revealed the hazard of not being able to provide sterile instrument sets on time for the
planned operations. Given that the programme could not have been realized completely
according to the simulation results, it is necessary to seek solutions either in acquiring
additional instrument sets, or by tackling the organization of operation planning. This
could be done by analysing the weekly operation plan and disjoining operations that use
the same instrument sets, for which purpose the expected operation times and required
instrument sets must be predefined, after which the problem can be solved with a
scheduling algorithm. In this way it can be assured that operation that might use same
instruments do not overlap and can also provide a safety measurement to keep a supply
of vital instrument sets that may be required for emergencies.

LITERATURE
Health Care Manage Sci. 11 23–33.
proposing new grouping choices of medical devices into packages. International Journal of
Production Economics 112 326–335.
decentralization of the hospital sterilization department. European Journal of Industrial
Engineering 3 (2) 227–246.
THE ART OF CRITICAL INFRASTRUCTURE PROTECTION

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Abstract: Since the well-functioning of our cities and urban regions is based on hyper connected (critical) infrastructures, making Critical Infrastructure (CI) resilient to Extreme Weather Events (EWE), such as heavy rainfall, drought or icing, is a highly demanding and complex challenge for both government and society. However, Critical Infrastructure Protection (CIP) is a wicked problem, which is only to be solved or managed in an adaptive way. Therefore, this paper explores the outcomes of CIP as developed in the European FP7 Program project INTACT (on the Impact of Extreme Weather on Critical Infrastructures) through the lens of the Urban Learning Cycle, a tool developed to support adaptive urban management and based on complex system thinking.

Keywords: climate change, critical infrastructure, urban, adaptive management, complexity

1. INTRODUCTION: THE URGENCY FOR RESILIENT CI

Three major developments urge the enhancement of the resilience of the urban Critical Infrastructure (CI). First, the growing importance of the urban areas and cities. According to the OECD an urban area is a functional economic unit characterized by densely inhabited ‘cities’ with more than 50,000 inhabitants and ‘commuting zones’ whose labor market is highly integrated with nearby cities (OECD, 2012). Over the past 50 years, the urban population has continued to grow. Nowadays 72% of the EU-28’s population live in urban areas. Cities are the engines of the economy: metropolitan regions hold 62% of its jobs and represent 67% of GDP (European Commission, 2014). The metropolitan areas of eastern Europe, like Warsaw, Prague, Bratislava, Budapest, are showing a larger GDP per capita growth than the EU average over the period 2000-2010 (PBL Netherlands, 2016). For the near future it is projected that up to 80% of the European population will live in urban areas. Not surprisingly, cities are seen as the essential machinery for (sustainable) economic development, due to a growing concentration of people, capital, innovation potential and business opportunities. Secondly, there is the so-called ‘vulnerability paradox’. While growing, cities have become ‘smarter’ as well as more vulnerable to all kinds of events. Figure 1 (left) shows that infrastructure systems like ICT, transport, energy, water, health, food systems, etc., have become more and more interconnected, influencing the functioning of the urban system (Chapman et al., 2013; Wilbanks and Fernandez, 2014). These well-functioning intertwined infrastructures are essential for the effective performance of the city-systems. However, events can lead to cascading effects (1st…n-th order) caused by the hyper connectedness of the infrastructures whereby a break-down in one area may impact on others (figure 1,
right). Thirdly, the pivotal role of urban regions is seriously threatened by climate change and the related increase of EWEs, such as floods, droughts, cold and heatwaves. Based on the NatCatSERVICE database the number of climate extremes on record in the European Environmental Agency (EEA) member states increased between 1980 and 2013, from around 80 per year in the 1980s to 120 in the 1990s and almost 140 in the 2000s. The total reported economic loss caused by climate-related extremes in the EEA member states over the period 1980–2013 reached almost EUR 400 billion (2013 value). The average damage has varied between EUR 7.6 billion per year in the 1980s and EUR 13.7 billion in the 2000s (European Environmental Agency, 2016). In the Balkan region the mean daily rainfall has increased only a little since 1950, but the intensity of the strongest rainfall events rose by one third (Floodlist, 2016). For example, according to Serbia’s Meteorological Institute, three months’ worth of rain fell in just three days in mid-May 2014, resulting in the worst floods to hit the country since rainfall measurements began some 120 years ago. Bosnia also experienced its heaviest rainfall since records began in 1894. The frequency of such potentially devastating extremes in the Balkans, doubled over the past sixty years (Hydromet Services, 2014). The EEA (2016) stated that the continental part of Europe, including Serbia and other relevant parts of the Balkans, will face, amongst others, an increase of heat extremes, river floods and forest fires, and a decrease in summer precipitation.

The combination of the three aforementioned developments makes cities more and more vulnerable to Climate Change and related (low-probability-high-consequence) EWEs. It puts a growing pressure on cities and urban areas to enhance their Critical Infrastructure Protection (CIP) to disasters in order to secure their role as engines for (sustainable) growth at national and international level.

2. CIP: THE CHALLENGE OF MANAGING COMPLEXITY

Although the task of enhancing CIP is clear, accomplishing it is quite a challenge: it is above all a matter of dealing with complexity and uncertainty. Complexity and uncertainty are not only due to aforementioned CI interdependencies, but are also caused by the inherently nested nature of CI, which is composed of individual infrastructures that are each defined by a number of components. These components of individual
infrastructure sectors are linked with components of other infrastructure and urban sectors (Wilbanks and Fernandez, 2014). Since uncertainty is inextricably linked with complexity, the protection of CI has to deal with a number of uncertainty related challenges. One of them arises from the fact that many stakeholders are involved, ranging from CI operators to policy makers. Each of them have their own perceptions, interests, and objectives, overseeing only a part of the total CI system and the urban system. This leads, for instance, to differences between stakeholders and beneficiaries in the tradeoff between costs and benefits. It leads often also to a variety of perceptions on potential solutions, ranging from individual buildings to measures on city or even hinterland scale. A second uncertainty challenge deals with time scales. In general there is a long and unpredictable time gap between investing in protection measures and realizing the long term benefits from them. Moreover, costs which are likely to be incurred in the (distant) future are often discounted. This can include events with low probability but high impact (such as extreme weather) which may be expected to occur only once every century. This might leave important future costs and benefits out of the design and mitigation policy. Moreover, despite the numerous climate and risk models, there is always uncertainty and dispute about the magnitude and impact of climate change and the related EWEs. The uncertainty surrounding such events requires challenging dynamic assessment frameworks that account for changes in vulnerability factors over time (Füssel, 2007). Based upon these characteristics and challenges, CIP is a ‘wicked problem’. There are many ways to define a ‘wicked problem’, but Rittel and Webber (1973) give a list of ten characteristics of wicked problemsto distinguish them from ‘tame problems’ that can be tightly defined and a solution fairly readily identified or worked through. The ten characteristics are not to be seen as a set of tests that mechanically determines wickedness; rather they provide insights to judge whether a problem is wicked. In line with the Ritter and Webber characteristics Head and Alford (2015) state that “wicked problems are generally associated with social pluralism (multiple interests and values of stakeholders), institutional complexity (the context of interorganizational cooperation and multilevel governance), and scientific uncertainty (fragmentation and gaps in reliable knowledge)”. Consequently, the level of wickedness is largely determined by the openness and complexity of the system, which also influences the direction and speed of its development. Because of the multi cause, multi potential solution and multi stakeholder character combined with the need for long term thinking and many uncertainties, simple top down steering processes are not suitable for wicked problems (Woestenburg et al., 2017a). Finding answers on, or at least managing, wicked problems should result from an adaptive management process. This can basically be described as a process of “learning by doing”: an iterative process of analyzing, documenting, envisioning, experimenting, evaluating, and adjusting policies and procedures (Camillus, 2008). The Australian Public Service Commission (2007) describes adaptive management as ‘an evolving art’ and links it to ten requirements. One of the most important is to have an holistic (systemic) and not a linear or partial view on the problem. Getting the big picture is necessary because traditional linear approaches to policy formulation are inadequate in encompassing their complexity, interconnections and uncertainty. Another major requirement is the ability to work across boundaries. Wicked problems go beyond the capacity of a single stakeholder. Collaborative processes that include working in a devolved and effective way with the relevant stakeholders are crucial. Accepting the need for a long-term focus to tolerate uncertainty is also a pivotal requirement for successful adaptive management. Other key requirements are the focus on behavioral
change of stakeholders and on comprehensive strategies combining a ‘step-by-step\-approach’ with continuous learning.

3. A CONCEPTUAL FRAMEWORK FOR CIP

Despite the complex nature of the adaptive management of wicked problems, dealing with this kind of problems requires a structured approach. Since CI is a complex nested system of the urban system and CIP is a wicked problem, complex system thinking offers a sound basis for such an approach (van de Lindt et al., 2002; Bouma and van de Lindt, 2017). According to complex system thinking a city develops itself by non-linear, rather unpredictable, processes and flows, resulting from the interactions between domains (i.e. safety, energy, mobility, population, urban economics, governance, etc.) and between different levels (figure 2, left). Based on this systemic view on the city’s functioning, Bouma et. al. (2017) developed the Urban Learning Cycle (ULC) to support adaptive urban management (figure 2, right). The ULC aims at influencing the urban processes and hence the development of a city along five interlinked integration pathways; (i) cross-domain integration to utilize synergies; (ii) policy making processes tied in with the decision making context; (iii) government in society: policy with and for stakeholders; (iv) tied coupling of vision, planning, implementation and evaluation along the plan-do-check-act cycle to really learn how policies work out in practice and (v) fact-based policy making based on profound evaluation and improvement of existing policies.

![Figure 2: The city as a complex multi layer system](image)

Comparing the ULC with the state of the art of CIP against extreme weather events, a number of gaps are identified. The most important gap is the current focus on individual aspects of resilience and operates within different disciplines. In addition, on a day-to-day basis, agencies, local authorities, regulators, asset owners, and the emergency services all work separately in their individual regions and sectors, with little scope for sharing information or joint forward-planning. This all leads to fragmented views, insufficient data and knowledge sharing, fragmented measure implementation, etc. A second major gap pertains to governmental commitment to critical infrastructure protection and the wholesale inadequacies in infrastructure related policies, which have served to undermine attempts at holistic strategic decision making. For instance, a ‘clear’ government commitment to risk assessment practices for critical infrastructure...
investment would also serve to stimulate greater private sector commitment by CI owners/operators. Thirdly, there is the lack of transparency due to the absence of a robust and credible data framework, which causes difficulties with assessing and evaluating future protection and prevention of CI. Quantifiable analysis and evidence based decision-making potential is weak, with an absence of data availability serving to curtail robust analytical analysis and limit the potential for conclusive findings from decision support systems on CI vulnerability, which puts pressure on fact finding policy making (McCord et al., 2015). To close the aforementioned gaps, the European FP7 Program project INTACT (on the Impact of Extreme Weather on Critical Infrastructures) has developed the INTACT Reference Guide (IRG), also called the INTACT Wiki (see figure 3). This is an online decision support system that facilitates cross-disciplinary and cross-border data sharing and provides a forum for evidence-based policy formulation by bringing together innovative and cutting edge CI and CIP knowledge and experience in Europe (see INTACT website).

![Figure 3: The structure and start page of the online INTACT Wiki](http://scm.ulster.ac.uk/~scmresearch/intact/index.php/INTACT_Wiki)

The INTACT Wiki contains, as well as supports, the INTACT Risk Management Process (IRMP) that is applied in the pre-event phase to sustain asset owners, operators and authorities with their aim to make reliable, cost-effective, efficient, and transparent decisions (Woestenburg et al., 2017b). The IRMP provides a structured approach to assess the EWE impacts on CI, including the resilience and vulnerability of CI, and to derive and test alternative measures and their costs and benefits. The IRMP distinguishes a number of steps and activities, which are in fact a CIP tailor made version of the plan-do-check-act cycle in the ULC (figure 4):

- **Problem exploration:**
  - Scope definition: determines the scope of the risk assessment in terms of the CI, the information needed and the type of approach, timeframes and scales to be considered.

- **Analysis of current and future risks:**
- Risk identification: explores and classifies the main hazards and vulnerabilities taking into account cascading effects.
- Risk estimation: assesses the risk magnitude using available models and taking into account uncertainties.

- Defining adaptation options:
  - Risk evaluation: assesses the magnitude of risk considering the particular context of the CI.
  - Proposals for action: provides guidance on the possible mitigation measures to reduce the estimated risk.

- Monitoring and reviewing:
  - Risk reduction control: provides the monitoring and review activities and circles back to the start of the process.

Figure 4: The INTACT Risk Management Process (based on the Urban Learning Cycle (Bouma, et al., 2017))

Furthermore, taking the systemic view as a necessary starting point, the IRMP goes beyond traditional risk management processes. Consequently, following the ULC and for example Boin and McConnell (2007), the IRMP assesses also the social dimensions of CI vulnerability. This includes aspects such as institutional designs for crisis management, governance criteria and socio-technical networks, which links to the ULC integration of domains, policies and organizations. To support this approach, the INTACT Wiki holds a long list of more than 40 tools and methods that can help the user of the INTACT risk management process to support to conduct each of the steps. The majority of tools and methods are to be used in a participatory context to stimulate stakeholder engagement and learn from each other, to bring together different perspectives, to develop comprehensive measures and holistic views, and to share and get the desired information. Some of the tools and methods are more qualitative by nature, for example the Storyline approach or the CIRCLE tool. Others are purely quantitatively focussing on specialists to get detailed information, for example Agent Based Models or Bayesian statistics. Of course this is not an all-inclusive list of available tools and methods, but it provides a sound basis for the CI risk management process. Which tool or method should be used, depends on the specific step in the risk.
management process and on the acceptability of the level of detail (see figure 5). Other criteria are the complexity of the risks and possible cascading effects, the availability of skills, experience, information, data and resources in time and budget and the nature and degree of uncertainty (Tagg and Roca, 2016).

Figure 5: Illustration of tools and methods in the IRMP and the level of detail (Tagg and Roca, 2017).

4. EXPERIENCES WITH THE INTACT WIKI

The risk management process as well as the information, tools and methods in the INTACT Wiki have been tested, and where necessary refined, in five European regions spread over Europe to cover for different climate zones, landscape types and environmental zones, as well as for different CI categories (see table 1). The experiences from the regions showed the importance of stakeholder involvement and the use of the appropriate tools in the INTACT Wiki. It was recognized that some (private-based) stakeholders, for example insurance companies, did not want to work in (close) groupings, or to share their ‘valuable’ information, due to issues of competitiveness or confidentiality. Therefore, the methods of facilitating stakeholder groups are vital and can make the difference between a positive outcome for everyone or an unbeneficial exercise. Another experience from the regions concerns the development of holistic solutions. It is obvious that impacts on CI require holistic solutions, given the interrelationships between different sectors and systems and due to cascading effects. Coordination between different stakeholders is fundamental to ensure that cascading effects are well considered in the analysis. This is where stakeholder engagement and other forms of collaboration are vital. Tools such as the Storyline approach have supported in developing a general appreciation of the problem. To develop holistic solutions, different layers of involvement and stakeholders are needed. However, each of these stakeholders looks at the problem from their own perspective, using their own assumptions and terminology. Here the INTACT Wiki proved to be very helpful by providing comprehensive content and a glossary on a wide range of topics like types of CI’s, weather impacts and a risk management process that is sufficiently general to fit all problems. The case studies also showed the value of coordinated learning. In addition to bringing stakeholders together to define the problem scope and to undertake the risk assessment, it is important that they also learn how to collaborate more effectively in case they have to actually deal with disasters. Collaboration provides better information to be fed into updated risk
assessments. Coordinated actions such as the EU-Flood Directive area good example of coordinated learning across all EU-member states, initiated after several large floods in Central Europe (Elbe, Danube and Rhine) and the UK. Outputs of these initiatives, like flood hazard mapping, were available for use in the INTACT project. The case studies proved that the use of the INTACT risk process provides a structured method for capturing all the relevant information. The risk checklist also is a useful instrument in capturing this information in a structured way. Last but not least, the cases showed that the INTACT Wiki, including the IRMP, is regarded as a consistent, reliable and valuable tool for the involved organizations because: (i) it serves as a checklist / proofing resource to justify robust decision and policy making within organizations, (ii) the tools presented are considered compatible with procedures used already by stakeholders, thereby adding value as the INTACT Wiki is or can be integrated or utilized alongside organization’s current systems and procedures, (iii) its possibilities as an in-house training tool in stakeholder organizations and for education and learning purposes and (iv) its benefits in policy making within organizations, determining long term policy objectives and strategic asset management planning (Tagg and Roca, 2016; Woestenburg and van de Lindt (2017b).

Table 1: Overview of the 5 INTACT case studies

<table>
<thead>
<tr>
<th>Country</th>
<th>City / Urban Region</th>
<th>Hazard</th>
<th>CI considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>Cork</td>
<td>Flooding, heavy rainfall /storms) floods</td>
<td>Transport, power, water utilities</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Port of Rotterdam</td>
<td>Storm, flooding, rainfall, other relevant EWE</td>
<td>Transport (roads, railroads, pipelines, navigation)</td>
</tr>
<tr>
<td>Italy</td>
<td>Campania</td>
<td>Rainfall, Landslides</td>
<td>Transport</td>
</tr>
<tr>
<td>Finland</td>
<td>Tampere</td>
<td>Snow storm, severe winter conditions</td>
<td>Power supply</td>
</tr>
<tr>
<td>Spain</td>
<td>Murcia</td>
<td>Heat waves, droughts</td>
<td>Networked infrastructure</td>
</tr>
</tbody>
</table>

5. SUMMARY AND CONCLUDING REMARKS

This paper showed that there are three major development that urge to take immediate action on the protection of our urban CI: the growth and importance of our urban areas, the climate change and the enhanced chances of EWEs and our present city’s dependency for its well-functioning on hyper connected infrastructures. Although the challenge of CIP is clear, meeting it is another story. To a large extend this is caused by the complex nature of CI being a nested system within the city that functions as a complex system itself. This makes CIP a wicked problem, which cannot be solved or managed with traditional top down steering processes, but requires adaptive management processes. This is, to speak in line with the Australian Public Service Commission (2007), the art of bringing stakeholders together to collaborate and to share information, visions on problems as well as on possible holistic solutions in order to make transparent and well underpinned decisions. It is also the art of learning from each other and to bring about a behavioral change. This all is the core of the Urban Learning Cycle (ULC) developed by Bouma et al. (2017) as a supporting tool for adaptive urban
management, based on regarding the city as a complex system of systems. Comparing the starting points of adaptive management in general and the ULC with the current practice of CIP, brings forward a number of gaps that urgently have to be closed: individually operating stakeholders where collaboration is needed, scattered information instead of shared information, lack of governance commitment where an engaged one should be appropriate and partial visions as well as measures, while holistic visions and comprehensive measures are necessary. The European FP7 program project INTACT tried to close these gaps with the development of the INTACT Reference Guide (IRG), also called the INTACT Wiki. The online INTACT Wiki contains, as well as supports, the INTACT Risk Management Process (IRMP) that is applied in the pre-event phase to sustain asset owners, operators and authorities with their aim to make reliable, cost-effective, efficient, and transparent decisions. Although the experiences with the INTACT Wiki and the IRMP are positive and drawing a lot attention (see table 2), it is necessary to scale up the adaptive management of urban CIP to enhance the resilience of critical infrastructures to EWEs. This actually means lifting the art of adaptive CIP management up to mainstream thinking and acting. INTACT has shown that the IRMP is replicable in different urban regions with specific governance structures and EWE challenges. However, the real condition for scaling up is a behavioral change of the stakeholders involved. Concerning this, the development of the INTACT educational program has been absolutely necessary. This structured virtual learning environment (VLE) is a free open-source learning management system or e-Learning platform that serves educators and learners across the globe. It provides a medium to control the VLE platform and the associated integration with the INTACT Wiki and formal education programs. Besides the incorporation in our education system, making adaptive CIP management part of daily urban management is necessary as well. It is therefore promising that, as we have shown, the IRMP fits perfectly into the Urban Learning Cycle, which forms one of the major starting concepts of a more recently started European project called RESIN: Climate Resilient Cities and Infrastructures (see http://www.resin-cities.eu/home/). Although these are all necessary and promising little steps forward in spreading the art of CIP, regarding the impacts of climate change and related EWEs we have to accelerate into a sprint now. This acceleration has to be started, organized, facilitated and fostered by the city and urban regional authorities using the city’s pivotal role in (sustainable) economic development and its innovative power to the benefit of the enhancement of CIP.

Table 2: Statistics INTACT website in 2015, 2016 and 2017 (Woestenburg and van de Lindt (2017b))

<table>
<thead>
<tr>
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<th>July 2015</th>
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REFERENCES

[12] Hydromet Services of Bosnia and Herzegovina, Croatia and Serbia (2014), Analysis and lessons learned from the floods in Bosnia and Herzegovina, Croatia and Serbia (presentation at the Regional Forum on Multi-Hazard Early Warning System & Building Resilience to Disaster, October 15th 2014, Ankara, Turkey)
[14] McCord M., Rodgers J., Davis P., Haran M., Berchtold C. (2015): SOTA, gaps and guidance parameters for all WP’s, INTACT Deliverable D1.1, project co-funded by the European Commission under the 7th Framework Program(grant agreement no. 653522)
[19] Tagg A., Roca M. (2016), Description of New tools, Approaches, and Data Collection, INTACT Deliverable D4.3, project co-funded by the European Commission under the7th Framework Program(grant agreement no. 653522), Wallingford, UK.


**Websites:**

- Climate Change Post: [https://www.climatechangepost.com/srbja/climate-change/](https://www.climatechangepost.com/srbja/climate-change/)
- Floodlist: [http://floodlist.com/europe/record-balkan-floods-linked-jamming-giant-airstreams](http://floodlist.com/europe/record-balkan-floods-linked-jamming-giant-airstreams)
- RESIN: [http://www.resin-cities.eu/home/](http://www.resin-cities.eu/home/) (funding from the European Union’s Horizon 2020 research and innovation program under grant agreement no. 653522)
CONTRIBUTION TO THE ESTABLISHMENT OF ADMINISTRATIVE EMERGENCY MANAGEMENT ORGANIZATION IN THE REPUBLIC OF SRPSKA

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Abstract: Emergency situations occur in various forms and the development of society has generated new forms of unforeseen circumstances, which create conditions for the emergence and development of such a situation. They are a constant in human history and in the modern world, they are becoming more numerous and diverse in nature. Organization of each community for the protection of citizens is the primary security issue. Damage that potentially occur during emergencies are large and the necessity of organizing and reduction of its effects is necessary. Hypothetical assumptions of this paper is that unique system of emergency management in the Republic of Srpska has not yet been built. These situation set the request to the Republic of Srpska for establishment of a modern, integrated national system for emergency management because only such a system provides an adequate preparation, action and effective response of the Republic and society.

Key words: organization, system, emergency, management

1. INTRODUCTION

The modern world is characterized by complex emergencies and their negative effects simultaneously affect different areas of life. The extent of human and material losses that arise as a result of emergencies has increased significantly over recent years, which was particularly pronounced during the floods in 2014, and the imperative is to reduce these losses. As a result, there is a growing interest in emergency management. Certain activities of the institutions indicate that we are at the beginning of the process of defining, designing and establishing an adequate emergency management system in the Republic of Srpska. It is high time to establish, through a holistic, coordinated approach in managing/responding to emergencies, an institutional, coordinated and comprehensive system with all the capacities and resources that are at disposal to be ready for an adequate response to emergencies. The current approach to the organization of emergency management system indicates a minimum use of opportunities that the the experience and knowledge in the field of emergency management enabling, not even taking into account the experiences and shortcomings identified during emergencies in the past five years. There are some solutions in the area of some subjects competence solely but there is no comprehensive approach to the system at the level of the Republic. In addition there are problems of uneven conceptual determination, the inconsistency of legislation and overlapping jurisdictions.
Republic of Srpska has not yet sufficiently, through appropriate legal provisions, regulations and policy documents clearly defined the concept of general management in emergencies, which makes the approach to this very important security area still fragmented in certain areas, depending on the form of threat. Because of this, the current approach to the implementation of emergency management, due to the lack of clear conception and deconfliction of competence, has resulted in inconsistent action, overlapping responsibilities and irrational use of resources. The Republic establishes a management system for emergency situations and some proposals for its optimal establishment are modestly considered in this paper.

2. DEFINITION OF THE SYSTEM AND ORGANIZATIONAL STRUCTURE

In general the theory of system stemmed from the need to develop specific scientific disciplines and in theory there is a large number of its definitions, divided into three groups. The first group comprises definitions that determine the system as a class of mathematical models to be elements of the idea of dynamic phenomena. The second group is the largest, and it is characterized by the terms, which define the system of elements and relationships. A third group of definitions are formed by means of input-output conditions, process information etc. [1]

System is an ordered set of interconnected elements which form one entity. The adopted definition of the system comprise element as a the base of the concept. Elements of the system, as integral parts of each system could represent concepts, objects and subjects. They may solely represent a system or be seen as a subsystem. Connection elements within the system is a system structure. This connection could be versatile, so that some of the observed elements could create more structures. The structure of the system is not only the layout of its elements but also relates to the detection of the main characteristics of the system. The connection between the elements and the elements themselves are not fixed, but relationships are fluctuating. Nature of the system elements and the nature of their connection can be quite different as well as the division and classification of the systems.

Thus, according to the nature of elements, the systems are divided into: the real and abstract. Under the real systems imply: technical systems, organizational systems, business organizations and the market and they are based on the functioning of natural laws created by men in order to satisfy some kind of need, with the incorporated schedule and connection of the elements for the purpose of exercising the functions of the system. Under the abstract systems are comprised models of real systems and their character is determined by the nature of real systems. According to the origin, the elements of the system could be divided into: natural and artificial. Having in mind the degree of complexity in relation to the number of elements and their mutual connections, systems could be divided into a complex and a simple one. However, this division is relative because if we divide the system into a simple and complex, then a natural biological systems and single-celled organisms are simple system and a human is a complex system. According to the above, the crisis management system, which includes the system of man-machine would, according to the number of elements, represent the simple organizational system, because it consists of two elements. If the observed structure of the system and criterion for division of the system into a simple and complex, then some simple systems could have a very complex structure of relationships [2].
Management of the systems is implemented in order to achieve objectives on the basis of receipt, delivery and processing of information, which serve as a basis for taking appropriate measures in the process of management. Natural systems have originated without the participation of a human. The process of achieving their goals is determined by the requirements of the nature and is reflected in the adaptation to the external conditions, which is explained by its constant evolution. When it comes to technical systems i.e. systems created by man, the problem is based in a different way because the goals of artificial system are determined by the man. Specifically, the goal of public organizations as artificial system is the realization of plans and programs. System management is the process of taking certain actions so that the system is brought to the realization of the set of goals. It is basically a new state that is different from the situation in which the system would otherwise be found in the absence of direct action by the management entity - manager. Export of the state of the system which we give a certain advantage over the other states, represents a decision. In the process of making decisions there is an application of different models on the basis of which it leads to the origin of acceptable alternatives.

The organization is defined as an association of people whose goal is to meet certain tasks with appropriate funds and with the least possible effort in any area of social life. The term organization is used to indicate: the process of organizing, organizing results, organization or institution as a scientific discipline. Common to different perception of the organization is that it is willing connection and mutual harmonization of the groups of people who, through corresponding material and resources, meet the set of goals. Managerial approach to the organization results from the specific objectives and selected appropriate strategies for their achievement. The process of organization design is the process of creating the optimal organizational structure and sets necessary responsibility and authority of the management of each component within the structure that would best fulfill the objectives of the organization.

Organization design provides harmonisation between the human and organizational resources in order to achieve an optimal result, the realization of the interests of all employees in a hierarchical stakeholders, achieving the preconditions for efficient management and realization of preconditions for effective management. When designing the organization, the manager must be aware of all possible resistance that may arise from the environment during the implementation of projected organizations and must therefore be defined in advance as possible of such resistance and ensure the implementation of a strategy that will mitigate the potential changes and reduce resistance to the implementation of the project. During the implementation of projected organizations there is a need to continuously monitor changes in the environment. Within every organization there are two types of organization. One is a formal type, which was formally established within the structure, prescribed and officially established. It describes and link tasks to be performed, combine factors of production, determines the ratio of executive and senior staff, and the rules and norms of behavior in the company. Informal type of organization is a real organization, which occurs spontaneously during the operation of a formal organizational structure.

There are several techniques and methods that produce organizational structure. General methods of organization to solve problems relating to the organization as a whole, or any part thereof. The analytical method is based on the analysis of the results of operations across a variety of indicators is based on the fact that the efficiency of operations depends on the degree of capacity utilization, economy, wear factors of production and of the time of engagement. Analytical method based on an examination of the
functioning elements of the business is based on the assumption that every company must have the corresponding components in the process of reproduction. Complex analytical method is a combination of analytical methods with the intention to make a quantitative determination of the existing evaluation and design of the new organization. The method of processing functions based on the previous except that introduces process functions as an important part of management. Graphic-matrix methods are an instrument of division of powers and responsibilities between the individual organizational units and individual positions within these units. Complex matrix method is based on an analysis of the overall operations and matrix-graphic regulation of relations between affairs holders. Specific methods of organization are designed to address individual organizational problems.

The organizational structure is a narrower concept of organization. The organizational structure is a system of relations among people aimed to perform certain tasks, and it's the most important part of any organization. The organizational structure represents the comprehensiveness of the links and the relationship between the factor and the totality of the connections and relationships within each factor separately. The design of the organizational structure is affected by two main groups of factors: external, that could not be influenced and internal, that could. Modern management prefers organizational structure that could quickly adapt to the changes that are constantly occurring in the environment. Accordingly, the organizational structure is divided into: the classical, non-adaptive or an inorganic (basic, functional and divisional); neoclassical, the semiadaptive and a semi-organic (project, the matrix and a modern, flexible or organic (process, network). In the broadest sense, the organizational structure consists of five basic elements: an operating part consists of all employees, strategic part consists of the top-level managers, the middle part consists of intermediate level management, technostructure consisting of specialists and staff personnel that supports management.

Like any other system, the system of emergency management is part of a larger, security system connected with the vertical and horizontal relationships. [3] Elements of the emergency management system in a broader sense consists of: activities, measures, operations, subjects and forces. [4] Activities are the most important element because they realized the system function while power and resources make the brain and the skeleton of the system. Activities may be systemic and functional while measures are actions undertaken in order to move forces and resources from regular state functioning in a state of crisis response. Operations are activities conducted in order to realize tasks of the system. [5] The term system includes: an objective, forces and means, structure of the elements of the system, activities and functions of the elements. Because of this it could be said that the system of emergency management of the Republic of Srpska is a form of organization and functioning of the forces and resources of the society in the implementation of measures, tasks and activities on prevention, response and recovery from emergencies, to be taken in order to protect people, property and indirectly vital values of the society from all sources and the factors threatening as potential sources of emergencies in order to have society progressing and holistically develop. Its basic function is the timely identification, identification and prevention of emergency situations and, effective response in the event of the same.

The assumption of an efficient emergency management system include the following: the system is organized and arranged, it is specific, open and dynamic, it is a subsystem of a larger system (security), it is hierarchically established, activities of the system are related to the adverse conditions, the existence of opposition between the objectives of the system and sources of emergency, operation is substantially caused by the human
factor, the purpose of system is the prevention and recovery, the irreversibility of methods, tools and events in similar conditions, work in all situations and constant changes in the structure and mode of action. Requirements of emergency situations placed before the emergency services are grouped in a way that: all participants in the emergency management system must have the same understanding of the situation (common operational picture), that communication must be fast and efficient, there must be the ability to communication and visualization through maps and charts, and that there is a need of integration of text, voice and image information in a single message.

Emergency management raises several key challenges that need to cope: the constant awareness of the situation, which includes real-time information and a common operating picture, the exchange of huge amounts of information, cooperation within different networks, decision-making support at all levels and work in extreme conditions.

3. EMERGENCY MANAGEMENT SYSTEM

ORGANIZATIONAL STRUCTURE

The emergency management system in terms of functioning requires the flow of energy, substance and information. Elements of the system structure consists of: operational part, strategic part, middle part, a part of technostructure and a staff. Method of structuring is specific to each organization and its unique and so it could not talk about a single, unified approach to structuring. Building an organizational structure must ensure: the realization of the objectives of the organization, the optimal division of labor, establishing clear responsibilities and division of functions, rational use of skills and qualifications and the work must be based on adequate information and communication.

The organizational structure is determined by the three key dimensions: the complexity, formalization and centralization. On these three dimensions affect has an applied technology as well. The organizational structure of the emergency management system is planned to operate in an unstable and very complex environment, and thus requires a minimum of complexity, formalization and centralization. Complexity will be considered from the point of horizontal and vertical differentiation. Horizontal represents the division of tasks in the organization and it is directly proportional to the complexity of the organization. Vertical differentiation is presented at the management level and it is directly proportional to the complexity.

Formalization implies that the level of regulation of the organization, standards, rules and procedures. Formalized organizations are less flexible and relatively slow in responding, however the nature and purposes of the organization it requires. The level of centralization is represented in decision-making in the system. It is essential to make the smallest possible number of management levels and as short chain of command and control as possible. The environment dictates that this system should be a combination of centralized and decentralized systems because centralized management at the highest level enables understanding of the full picture while also giving authority in decision making to those levels in the organization who are the most familiar with the situation and who have the most information about it, stimulating the lower levels of decision-making. An important assumption of the system effectiveness is professional staff structure and personal.

The structure of the emergency management system would be based on a mixed organization model because it includes a number of different models. Given that there is
a need to perform tasks according to a certain functions, the structure of the first level would have elements of a functional structure, initially in accordance to the basic model and later it could be transferred into the standard model of organizational structure. Also, the structure would have an elements of divisional structure based on geography. Division of labor and jurisdiction would be based on a geographical area in accordance with the internal organization and experience in the organization of such systems in other countries. The use of these structures more easily adopt to the local customs and mentality, accelerates performance, enhances authority of local management level and the advantage of this model is that the largest organization makes "shallow" and thus less complex, with a small number of levels of management.

Function of the Administrative organizations for emergency management in the Republic of Srpska would be to propose decisions and provide consultation, coordination, timely response, efficiency and proper use of resources at the disposal of the administrative organization and to provide timely, high quality and realistic assessments of vulnerability of the Republic of Srpska on the risks and dangers. Administrative organization would be an independent public authority, namely the administrative organization of the Government of the Republic of Srpska, as a legal entity. The tasks of the Organization should generally include: development and maintenance of risk and threat assessment aimed at resolving emergency situations, proposing measures and activities for effective emergency management, coordination of efforts and activities of all entities and resources involved in the process of emergency management, training and education of personnel for emergency management and ensuring the continuity of interdepartmental and international cooperation, consultation and coordination of emergency management.

Planning of development, operating and running costs would be performed using the system of planning, programming, budgeting and execution. Financing of administrative organizations should be ensured from the budget, donations or providing services as a public authority and would be a subject to financial audit in three levels. Administrative organization would be responsible for inspection and control, ensuring implementation of the emergency management law, which would legally regulate a complete system for emergency management and the authority of administrative organization.

An integral part of this law would be an internal organizational chart of the administrative organization that would be presented by functional departments. These functional units would be presented through the support section of manager, human resources department, department for analysis and assessment, department for operations, department for logistics, finance department, department for administration and department for international cooperation. In this way, it covers all functional areas of efficient functioning of the administrative organization for emergencies. The proposed organizational structure is to enable functional connection of the complementary organizational units or sectors, such as logistics and human resources in resources, international cooperation and operations in operations and finance and general affairs in general administrative department, in order to optimize the number of connections, efficient management and faster throughput information.
A unique set of measures and activities of emergency management would consist of four elements: the formalization, preparation, training and resources development and information management.

In order to develop a system that would reduce the possibility of occurrence of emergency situations, it is necessary to respect the effective normative and legal framework that could be developed only through formalization - a clear legal and normative regulation, regardless of the type of activities undertaken. The ultimate benefit of this approach would be to identify areas that need attention, the establishment of a list of potential emergency situations, determining the scope of the measures to be taken in accordance with the current efforts and which would be constantly updated. It is necessary to ensure that all levels of management to become part of the program, which could be achieved through: underlining responsibilities of key management, real reporting, planning and control of compliance with the measures at all levels. Each organization needs to be aware of the situation and in relation to the circumstances build its organizational culture.

Preparation in its broadest sense means measures taken in order to prevent, prepare, response, avoidance and recovery of the emergency. There are four critical aspects of preparedness: preparation and prevention, detection and classification, response and avoidance and recovery.

Training and resources development is the third component of this approach. Training organizations for emergency management is one of the critical factors that must be implemented in order to achieve adequate capacity to undertake measures and activities during emergencies. Development of training and reaching the required level of preparedness is part of the overall process. System approach to the provision of effective training programs, would consist of: analysis of tasks, making lessons, instruction and assessment. In addition to formal training program, there is a need for specialized training for particular duties. This could be achieved by establishing a program that complements the training with various drills and exercises and workout procedures. Program drills could have different degrees of complexity and difficulty.

The need to establish a unified program of emergency management is a crucial issue because the process does not end with creating a plan but already taking measures in compliance with envisaged measures and procedures, including the recruitment and management of trained personnel. Commitment in the field of compliance, preparedness for response and training is essential. Establishing a clearly defined structure of information management is to ensure that all documented materials are available when needed. Higher levels of management must be constantly informed because information is costly and must be handled and exchanged efficiently. Emergency situations are particularly critical, which is why there is a need for an active system that will provide information on the resources, personnel and skills. It is extremely important to have a system (included backup system) which will be used for identification, cataloging, setting priorities and monitoring items related naupravljanje crisis management and response activities and crisis response.
5. PLATFORM FOR DISASTER RISK REDUCTION OF THE REPUBLIC OF SRPSKA

The need for systematic reduction of the impact of emergencies would get the importance once adopting the act that provides guidelines for the creation of a national platform for reducing the risk of emergencies. [6] A terminology, it could be defined as a national, multi-agency mechanism designed for coordinating, analysis and consultation in the areas of primary importance for the operation. Platform for DRR is a conceptual framework for the elements that are taken into account in order to minimize the vulnerability and risk of emergencies within the society and to be taken in order to prevent and limit the effects of hazard, as well as to contribute to the overall development. The process of creating a platform for reducing the risk of disaster is complex and consists of several components: political, technical, components of participation and resources mobilisation. [7]

The political component ensures strong political commitment at all levels of management. The technical component involves various activities such as the development of knowledge-based platform, creating a methodological framework and the establishment of a package of indicators for disaster reduction. Component of participation implies involvement of relevant groups from the public, private and NGO sectors, while a component of resource mobilization includes resources necessary for the development of the platform and its implementation. So, this platform requires a collective effort from different sectors, both public and private, in terms of the development of national policy and decision making. The platform is aimed at developing a coordination mechanism for policies, plans and programs with the aim of contributing to the establishment and development of a comprehensive national system for disaster risk reduction.

Objectives of the platform for disaster risk reduction would be aimed at contributing to the development of resistance of the Republic to emergencies. Through the platform is achieved an integrated approach to prevention, early warning, emergency management and disaster avoidance. It takes place in an effective and efficient engagement of resources with the parallel building of security culture and reinforce the preparation for disaster at all levels. The platform serves as a coordination mechanism to enhance inter-agency cooperation and coordination through a process involving all stakeholders. It provides an environment in which to develop a culture of prevention by emphasizing and raising awareness about the necessity and importance of the integration of the platform into policies, plans and programs, which meets the ultimate goal.

Dynamic national platforms for risk reduction show an intense national ownership and leadership. The public sector has been active in promoting the platform, policy development, capacity building, raising public awareness and advocating integration of the platform in a variety of activities. The main principles of the national platform for disaster risk reduction are primarily a national responsibility, the involvement of different sectors in the construction of platforms, the impact of changes in policies, planning, administration and decision-making processes and encourage the application of the national and local levels.

The need for systematic reduction of the impact of emergency situations, to get the character through the adoption of a platform to reduce the risk of disasters in the Republic of Srpska. [8] Implementation of the platform should control the administrative organization for emergency situations but with active coordination and participation of
all relevant partners while the functions of national platform for risk reduction could be summed up by a few points. [9]

6. CONCLUSION

Ability to protect citizens and property is primary security and economic issue of each country. Enormous losses caused by the various emergency situations affecting mostly ordinary citizens and the need to organize society in order to reduce their effects is necessary. Emergencies are often turning points between the different social and political arrangements, and there is no "silver bullet" to solve this situation. Various "solutions" only generate the illusion of its control, that does not match its context.

Emergency management aims to avoid or minimize losses and victims of threats, react efficiently and provide rapid recovery response. This is a continuous process that involves the development of strategies and plans that seek to reduce the effects of emergencies. The knowledge and competence is a prerequisite for the effective conduct of a series of activities. Insufficient knowledge of this area of activity results in the absence of a program segment of the emergency management system and thus the absence of education for the area.

Successful implementation of the protection and rescue function presupposes optimal coordination of the preventive and reactive engagement of the emergency management system and the maximum effectiveness of each of the elements that form it. Achieving the defined goals is possible through the development of inter-institutional partnership, the synergy of the governmental and non-governmental sectors, civil society and the private sector. This approach provides a strategic orientation in increasing accountability for all stages of the emergency.

An establishing a complete and efficient emergency management system is the necessity and duty of every organized society, as well as the Republic of Srpska. This paper suggests establishment of an administrative organization for emergency management of Republic of Srpska intended to provide prevention, timely reaction, efficiency and proper use of the resources at its disposal as a standalone segment of the public administration as a legal entity and clearly defined tasks and responsibilities as an integral part of the overall security system, connected to the vertical and horizontal links.

The proposed concept of emergency management would abandon the classic concept of civilian protection redirecting to a new concept focused on the development of capabilities needed to respond to emergencies. It is necessary to develop an understanding both to the public and political leaders that the existence of a emergency management system is the need of vital importance. This would result in a clear legal regulation of the entire system, making policy and platform for action and ensuring their application in reality, with the establishment of an effective system of inspection and control.

In this way it could give a new quality or indicate some areas that need to improve the services and systems intended for deployment in emergency situations. Thus conceived, a comprehensive, integrated and flexible system for developing leadership and management capabilities in emergency situations would be developed, adequately determined, taking into account its dynamics and anticipating and developing security threats under the influence of which it is changing and developing. Such an organized system in modern society does not exist as an isolated entity, it is actually in interaction
with other social and special security systems within the framework of the national security system.

REFERENCES

CONTRIBUTION OF DECISION SUPPORT SYSTEMS 
IN SOLVING THE PROBLEM OF WIDEBAND RADIO 
RECEIVER SELECTION BY AHP AND TOPSIS 
METHODS

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Abstract: In this paper we presented the contribution of the decision support system in selection of wideband radio receivers for the procurement of Serbian Army units. Expert Choice and MS Excel programs were used for software support in multi-criteria analysis (AHP and TOPSIS). Data about the alternatives were taken from the bids of the equipment manufacturer, and the criteria that the equipment should satisfy were obtained from the user of the equipment. The obtained rank of alternatives, by methods was analyzed and compared in order to present the contribution of decision support systems in the process of selection and procurement of this type of equipment.

Key words: selection, wideband radio receiver, AHP, TOPSIS.

1. INTRODUCTION

The development of communications has caused the need for units of the Serbian Armed Forces whose obligation is to control the information space, to be equipped with wideband radio receivers. However, when purchasing, one must choose between several alternatives (firm-manufacturers) whose products must meet specific criteria (tactical-exploitation requirements, requirements regarding terms of use, prices and other characteristics of the receiver).

The choice of a wideband receiver is a complex problem, because an alternative that best meets the whole set of criteria must be chosen. This problem can be presented with a multi-criteria model that includes the essential characteristics of the wideband receiver. To date, a large number of models and techniques have been developed to address the problems of equipping and procuring this equipment [1,3,8]. During the decision-making process, the choice for the most acceptable offer of wideband receivers can be set as the goal of decision-making issues. Choice of the most acceptable solution (wideband receiver) is supported by decision support systems, because they shorten the decision making time, have the ability to visualize results, and they provide an opportunity to analyze the solutions obtained.

2. DECISION SUPPORT SYSTEMS

Each decision maker, in problem solving, has a limited time available to devote for decision-making. Deciding is the choice of one from the available alternatives, whereby the set must have at least two alternatives [2]. In today's business environment,
alternatives are attributively different, so the choice is difficult to make. Also, the alternatives' attributes are often completely opposed, and the criteria (constraints, conditions) are met in different ways. In addition, the criteria can, by their very nature, be very heterogeneous and expressed in different measuring units, from monetary units, through units of physical quantities to probability or subjective estimates determined on the basis of the scale formed for the particular problem. In addition, the problem is hampered by the fact that decision makers can, mentally, compare and evaluate only a certain amount of data.

To help decision-makers, today, and to support these issues they are provided by decision support systems. Decision support systems are information systems whose aim is to support mainly business decision-making processes. They represent the symbiosis of information systems, the application of a set of functional knowledge and the current decision-making process [7]. Because of the variety of choices that decision makers face, decision support systems are flexible and adaptive, and in order to improve efficiency and decision making effectiveness, they must be easy to use.

As, decision support systems, support all phases of the decision-making process, in this paper, in the selection of equipment for units of the Serbian Armed Forces, the method of Analytical Hierarchical Processes (AHP) and the Expert Choice software package will be used, and then the results will be verified with the software package MS Excel and the TOPSIS method.

As decision support systems comprise at least three subsystems. The databases, the bases of models and user interfaces. In this paper, the database (on alternatives) is taken from the decision maker (the offers of wideband receivers from the market). Multicriterial analysis methods were used to select between the offered alternatives, and software packages Expert Choice and MS Excel were used as user interfaces.

3. PROBLEM DESCRIPTION

In practice, it often happens that wideband receivers (alternatives) have similar characteristics. These are usually the following: sensitivity, demodulator type, demodulator filter width, detection threshold, automatic and manual gain control, frequency resolution and power mode. Receivers often differ in price, reliability, frequency bandwidth, maintenance quality and functioning in different conditions, because these characteristics depend on the quality of the embedded components. Manufacturers often "save" on various components, according to their estimation/decision, so the offer on the market is different. It also happens that by one criterion, for example, the "reliability" the bids are the same or similar, and according to another criterion, e.g. "price" they are drastically different, so it is necessary to consider at the same time how the alternatives meet all criteria and then compare them. The above situation, makes it difficult, for the chief of technical support (the decision-maker), to select a wideband receiver. This is the reason why the subjective side of the decision-maker may overcome, and the solution of the problem will only cover some of the criteria that were set. In our case, it is important to choose the most affordable offer, but also a wideband receiver that can respond to both tactical requirements and technical requirements. Therefore, the following relevant criteria are defined:

- the frequency bandwidth,
- usage conditions,
- reliability,
Frequency bandwidth - expressed in GHz and must be at least 3 GHz (in the range of 30 MHz to 3 GHz), whereby it is assumed that in the range in which it operates, the receiver intercepts, detects and demodulates communication signals.

Usage conditions - expressed in °C, the receiver must operate within a minimum temperature range of 50 °C (in a minimum range of 0 °C to + 50 °C).

Reliability - it is rated with "Mean Time Between Failure (MTBF)". The average time between the failures is determined and practically verified, the average working time between the two consecutive faults of the receiver being used and maintained in the prescribed manner (MILSTD 217D, MILSTD 781C, IEC-605-7, IEC-1709). The cancellation implies the inability of the receiver to operate in the prescribed conditions in the prescribed manner. Cancellation does not include the termination of the receiver which the user of the receiver (operator) can remove by means of tools or accessories. It is expressed in hours and the receiver should have a MTBF of at least 10,000 hours.

Maintenance - is expressed in the number of years, during which the manufacturer must ensure the presence of stock spare parts for the receiver (for a minimum of 3 years).

Price - is expressed in thousands of euros and is a cost type criteria.

After determining the criteria, alternatives were identified (manufacturers of equipment), in our case IZT, Elbit, Plath, Rohde & Schwarc and Icom, and after the opening of bids, data were collected on how the offered receivers meet the criteria.

4. SOLVING THE PROBLEM BY APPLICATION OF ANALYTICAL HYERARIC PROCESS METHOD SUPPORTED WITH EXPERT CHOICE SOFTWARE PACKAGE

4.1. Analitical hyeraric process method

This method is often used in the field of multi-criteria decision-making [6]. It is based on the concept of balance, used to determine the overall relative significance of a set of criteria, and relates to the analyzed decision problem. The modeling process consists of four steps, as follows, structuring problems, collecting data, determining relative weights, and determining problem solutions.

4.2. Application of the method for selecting a wideband receiver supported by Expert Choice software

To solve our problem using the AHP method, software Expert Choice was used. This software is one of the tools for solving the problem of multi-criteria decision making that allows problem structuring and comparison of criteria and alternatives in pairs, as well as sensitivity analysis, by simply changing the weight of the criteria with the graphic representation of the solutions obtained. Also, problem modeling is simple and the design is adapted to the average user [4]. Our goal is to select the most acceptable offer of a wideband receiver from five offered alternatives, using the five described criteria to find the optimal solution, in relation to which available alternatives were observed. The input data of the product are shown in Table 1.
Table 1: Values of characteristics for wideband receivers by the defined criteria

<table>
<thead>
<tr>
<th></th>
<th>frequency bandwidth (in MHz)</th>
<th>usage conditions (in °Cx10)</th>
<th>MTBF (in 10^4 часова)</th>
<th>maintenance (in years)</th>
<th>Price (in 10^3 евра)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IZT</td>
<td>3,3</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>ELBIT</td>
<td>5,8</td>
<td>7</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>PLATH</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>R&amp;S</td>
<td>3,6</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>5,5</td>
</tr>
<tr>
<td>ICOM</td>
<td>3,3</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

First, it is necessary to define the weight of the criteria in a mutually consistent relationship. The software uses Saaty's scale to compare the relationship, and the evaluation of the relationship between the criteria will in our case be done by the Chief of the Technical Support Group, otherwise in charge for the work of equipping. The software calculates the value of the weight for each of the criteria and gives the values of the weights shown in Figure 1, with a total inconsistency of 5%.

Compared to other criteria, third criterion "Reliability" is the dominant criterion with 0,567. This situation reflects the real requirements of the users, that the most important is the time between the two failures. Because the receivers usually work continuously and at the annual level they have about 10,000 hours of work. The lowest value is given to the "Usage Conditions" criteria with a weight of 0,040 because these receivers are in air conditioned rooms or motor vehicles, and the temperature range of the operation has an effect on tactical exploitation, but it is small. The next step is to determine the relative preference of alternatives in relation to the given criterion. On the basis of information about the alternatives, a preference table is formed, and the Saaty's scale is also used.

The final ranking of alternatives with a total inconsistency of 4% are shown in Figure 2, according to which IZT is the most acceptable offer of the company with a total priority of 0,351.

The image also shows the "order" of wideband receivers, with the worst ranked offer of PLATH with a total value of 0,118.
5. SOLVING THE PROBLEM BY APPLICATION OF THE TOPSIS METHOD SUPPORTED BY MS EXCEL SOFTWARE PACKAGE

5.1 TOPSIS method

TOPSIS (Technique for Order Preference by Symilarity to Ideal Solution) method involves ranking alternatives by multiple criteria based on a comparison of the distance from the ideal solution and the negative ideal solution [5]. The ideal solution minimizes cost-benefit criteria, maximizing the benefits of a beneficial type criteria, while the negative ideal solution is reversed. The method provides a well structured analytical framework for ranking alternatives, and for resolving multi-dimensional problems, normalization of values is required. The method uses a simple mathematical apparatus and it is always performed in six steps, regardless of the number of alternatives and criteria. The optimal alternative is one which is in the geometric sense closest to the ideal solution, and is, furthest from the negative ideal solution.

5.2. Application of the TOPSIS method for the selection of wideband receivers supported by MS Excel software

The presented method was used in solving the same problem, with the same criteria, alternatives and values of input data, as in solving the problem with the AHP method. Using the MS Excel software package, the values in the table are easy to normalize in order to get dimensionless numerical values. In the next step, the weights of the criteria obtained in the AHP method are multiplied by the obtained nominalized values in order to get a difficult normalized decision matrix. Applying the next steps of this method, we obtained the rank of the alternatives shown in Figure 3.

Figure 2: The final ranking of alternatives
The first in the range is IZT, its distance from the ideal solution is the shortest, and the distance from the negative ideal solution is greatest. The MS Excel software package almost instantly gives the results of mathematical formulas with a large number of factors, in this way the decision-making time is reduced. Also, there is the possibility of changing the weight of the decision maker directly influencing the result of the election. By this procedure (subjective determination of the weight) the preference of the decision-maker can be expressed.

6. RESULT ANALYSIS

Using AHP and TOPSIS methods supported by decision support systems have proven to be a very successful tool in the decision-making process for choosing a wideband radio receiver with five criteria and five alternatives. In both methods, we obtained the same result which speaks about the credibility of the results obtained. Therefore, based on the results, it can be concluded that the IZT wideband receiver is the best choice (Table 2).

Table 2: Comparative overview of the results obtained

<table>
<thead>
<tr>
<th></th>
<th>AXII</th>
<th>TOPSIS</th>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>IZT</td>
<td>0.351</td>
<td>0.859566118</td>
<td>1</td>
</tr>
<tr>
<td>ELBIT</td>
<td>0.286</td>
<td>0.676691625</td>
<td>2</td>
</tr>
<tr>
<td>PLATH</td>
<td>0.118</td>
<td>0.091129101</td>
<td>5</td>
</tr>
<tr>
<td>R&amp;S</td>
<td>0.123</td>
<td>0.174954823</td>
<td>4</td>
</tr>
<tr>
<td>ICOM</td>
<td>0.123</td>
<td>0.176834918</td>
<td>3</td>
</tr>
</tbody>
</table>

Although the IZT provider does not dominate in all criteria, and even in one criterion it satisfies condition with the minimum value, in the final ranking the alternative is the first. The second ranked alternative (ELBIT) dominates in three out of five criteria, but still it is ranked second. The most unfavorable choice is the offer by PLATH, which is the worst in four out of five criteria. Expert Choice allows the decision maker to analyze the sensitivity of the results by checking the stability of the results obtained, by simulating a change in the relationship between the weight of the criteria and the priorities of the alternatives. The resulting solution is stable because only a drastic change in weight coefficients can disrupt the order of the alternative. This means that the criterion with the highest weight become one of the less important, which is impossible.
in practice. Based on the above it can be concluded that decision model is realistic and consistent. The Expert Choice software also offers a dynamic display of sensitivity (Figure 4), which is of great importance for our problem, because this view shows the participation of all criteria in each alternative.

Figure 4: Dynamic display of sensitivity

7. CONCLUSION

The contribution of the decision support system in solving the problem of choosing a wideband receiver is significant. The solution is fast, stable, verifiable and consistent. In solving this problem, the AHP method supported by the Expert Choice software was first used, because the results of AHP decision-making do not only contain the ranking alternatives, but also information on the weight coefficients of the criteria relative to the goal. Also, the AHP method is a very useful tool because it does not ignore the fact that the decision maker in the mental plan often does not separate the process of assessing the criteria from evaluating alternatives. In this way, the consistency of the assessment was carried out, taking into account the whole problem and functional interactions of the criteria and alternatives, also the used software enables analysis of the solution. Using the decision support system, when choosing a wideband receiver, an acceptable and optimal problem solution has emerged, and the data can be used in the continuation of the equipping process. The software package MS Excel provides time savings, namely, thanks to the results of the TOPSIS method, in the negotiations that follow, after the choice of the equipment manufacturer, the decision maker is in the advantage because it is important to strive in negotiations to the ideal solution, and thanks to the dynamic display of sensitivity in AHP, it is obvious to see the strength of each offer, that is, in which criteria each alternative is strong, and in which they are weak.

LITERATURE


SOCIAL MEDIA INCIVIL EMERGENCIES

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Abstract: Development of contemporary technologies and internet, has established new kinds of communication. Social Media have become important social phenomena and unavoidable factor of modern social relations. It is undeniable, that Social Media provide timely flow and exchange of information. Considering that data at Social Media are available in real time, Social Media in civil emergencies could be important source of information for the response forces. This paper aims to highlight the place and the role of Social Media in civil emergencies. With proper and active use of these resources, readiness of society to respond to civil emergency can be better and the effects could be reduced to some extent. In BiH it is not the case.

Keywords: Social Media, internet, civil emergency, protection and rescue, Bosnia and Herzegovina

1. INTRODUCTION

One of the numerous challenges that influences emergency management is technological development. Such development is the widespread availability and growing use of mobile services and social networking applications along with virtually universal access to the internet. Today, Social Media are important part of social life. They are a tool for running people, convenient for organizing large number of people in short time, but control of that media is questionable. When it comes to information collected through Social Media, there are risks associated with largely unregulated, internet-based system of public mass communication. Communication plays a key role in effective disaster response. However, society's increased use of Social Media has changed the dynamic of disaster communication in a way that deserves a further study. Incorporation of Social Media into existing emergency management systems is inevitable in order to share weight of public usage of such facilities. Moreover, as Social Medias can be two-way means of communication, they can mix unofficial and official information. Organization’s success in disaster management, and especially in response to disasters largely depends on its ability to communicate effectively. Social Media platforms and online collaboration tools have proven to be very useful in connecting various stakeholders and helping them to coordinate people and tasks during the response and recovery from a disaster event. Moreover, emergency management agencies have recognized the need to provide the public with timely, credible and useful disaster communications. On the other hand, communication manager should be aware that Social Media is only one of many tools that can be used to disseminate information. More then 4 billion of people in the world do not have access to the internet. But, the use
of Social Media and number of Social Media are growing at an exponential rate. The research of the American Red Cross stated that 75% of the population will, by Social Media, contact friends to see if they are safe in case of disaster, 37% will purchase supplies or will seek safe shelter and 25% will download emergency applications. Only 12% will seek information about water, traffic and damages caused as well as sharing weather information, reassurance of safety and information about the emergency.[5, p.10] Researches showed that in each phase of the emergency management cycle (prevention/mitigation, preparedness, response and recovery), Social Media has been used effectively as part of an overall communication strategy. Social Media is viewed as effective in all phases.[6, p.39] This paper has an aim to highlight the place and the role of Social Media in civil emergencies and to show where BiH is in it. For the purpose of this paper, I have analyzed facebook and twitter profiles of all seventeen officially declared towns in BiH, thirteen governments on all levels (state, entities and cantons) and twelve civil protection departments at the entity and cantonal level. Results show that usage of Social Media in BiH, in this case facebook and twitter, are not at the level that can be effectively used for civil emergencies.

2. SOCIAL MEDIA IN CIVIL EMERGENCIES

Social Media is all the devices and platforms that allow users globally to create and share information with each other in virtual environment. Platforms are virtual places that allow users to come together and create and share information, and devices are the computing technologies that enable users to access the platform.[2] Many recent disasters have highlighted the benefits of using Social Media to disseminate accurate, timely and credible messaging to help victims during times of crisis.[6, p.11] At this point, important thing to consider are reasons why people use Social Media, and these can be:

- because of convenience;
- based on social norms;
- based on personal recommendation;
- for humor and levity;
- for information seeking;
- for timely information;
- for unfiltered information;
- to determine disaster magnitude;
- to check in with family and friends;
- to self-mobilize;
- to maintain a sense of community;
- to seek emotional support and healing.[3, p.5]

There are also reasons why the public might choose not to use Social Media:

- privacy and security fears;
- accuracy concerns;
- access issues;
- knowledge deficiencies.[3, p.6]

However, social media content offers community members and agencies alike to access real-time, first-hand information during the preparation, response and recovery phases of
disasters, that can be tailored to meet the needs of different groups, and it represents a useful tool for communication and situational awareness. It is important to highlight that Social Media or profiles at Social Media can be official, made by official organization, but also unofficial profiles of same organizations made by some individuals. In general, Social Media have both beneficial and potentially malign connotations. Advantages:
- A listening function – Social Media are able to give a voice to people who do not normally have one;
- Monitoring a situation – whereas the listening function involves the passive collection of information, monitoring is conducted in order to improve reactions to the events and better manage the general public by learning what people are thinking and doing;
- Integration of social media into emergency planning and crisis management;
- Crowd-sourcing and collaborative development – in most disasters first responders are the public:
  - Creating social cohesion;
  - Fundraising;
  - Researches.[1, p.720-723]
On the other hand there are drawbacks:
- Rumor propagation is not to be ruled out, nor is the dissemination of false or misleading information, whether this is done inadvertently or deliberately;
- Sharing of the volume of information involved;
- Usage of Social Media during a major interruption of electricity supply;
- Quick check of validity of information is not possible;
- Short messages, and it is often hard to identify the sense without looking in the context;
- Messages are in line with modern net-writing spelling (4U -for you, 2mor -tomorrow etc.);
- Users are not sure which Social Media profile is official and which is not.
When it comes to civil emergencies, there are three main areas where social media platforms and applications have been used successfully and those are: public information, situational awareness and community empowerment & engagement.[3, p.7]
When delivering information trough Social Media, it is important that the organization develops a policy that clearly defines the tool of the Social Media manager and those who disseminate information.Moreover, if there is a social media in place which was established by organization, there should be social manager position established, too. Social Media programs requires significant resources, especially human resources, to be effective. Organizations should use Social Media as part of a larger, comprehensive communication system that includes online sources, traditional broadcast media, print media, and direct notification system. On another hand, in time of widespread emergency conditions, older traditional means such as amateur radio transmission and emergency broadcast system may be utilized.
During emergency, there are different users of Social Media and they can be seen as: authorities (A) and citizens (C), but also as senders or receivers of information. It is possible to make connection between these elements that can help us understand the way of communication during emergency (table 1). To show all complexity of relations it is important to add that apart from receivers and senders, there are also others who influence this communication, such as: helpers, reporters, resenders (retweeters), repeaters, readers and moderators, etc.

There are also people or agencies that seek for help – “seekers”, and those who provide help – “providers”. Each of those two groups can be “in” or “out” of the affected area and there are combinations: in/seeker, out/seeker, in/provider and out/provider, and all of them have their influence on social media networks. Needs are different: in/seekers – are in affected area and they seek for information, resources, aid and help; out/seekers – are out of affected area and they seek something from other networks and their members that can help people in affected area; in/providers – are those in affected area who provide some help, or something else to other members of network; and out/providers – are those out of affected area who provide help to other members of network.

Taking under consideration all that was said, there are some recommendations how to build effective Social Media for risk and crisis communication:

- Social Media policy – important part are directions for information managers;
- building of specific brand of agency – unique presence of social media or specific online identity;
- trusted relationship and partnership should be built prior to a crisis;
- build followers and enhance two-way conversations;
- built trust and credibility necessary for proper risk and crisis communication;
- Social Media emergency management should be incorporated across all aspects of the incident command structure;
- Social Media emergency management stakeholders including emergency management organizations, VTCs, virtual volunteers and NGOs should agree on a set of shared principles that guide their (online) collaboration, cooperation and coordination.
- monitor Social Media messaging – important in all area of communication. [6, p.26; 3, p.32]

Any system of disaster response or risk reduction that depends on Social Media for access to its services risks excluding those people who lack access to the requisite means. There is a huge vulnerable population, such as the elderly, disabled, or vision-

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**Table 1. Social Media Crisis Communication Matrix[5]**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority</td>
<td>Authority to Authority (A2A): Inter-organizational Crisis Management</td>
<td>Citizens to Authority (C2A): Integration of Citizen Generated Content</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Authority</td>
<td>Citizens</td>
<td></td>
</tr>
</tbody>
</table>
impaired that may not be easily reached through social media. Also, there are citizens who for reasons of poverty, disability, age or choice do not possess smart phones, computers, tablets or any other devices that have access to the internet and do not know how to use them.

3. SOCIAL MEDIA AND DISASTER MANAGEMENT IN BIH

Some research showed that Social Media indeed is an effective tool for risk and crisis communication.[6, p.50] By providing community members with tools to engage in crisis preparedness, response, and recovery, Social Media may have a role to play in building community resilience, community’s ability to respond to, withstand, and recover from adverse situation. Most emergency agencies around the world now use Social Media as two way communication tools alongside with traditional media, to communicate for warning, response and recovery. Social Media are used to warn people, and help in coordination of response and recovery. Logical models showed that Social Media with stronger connections (networks) are more elastic in emergencies and disasters.[4]

In this paper situation in BiH is presented in accordance to the results of analysis that was done on Social Media (facebook and twitter) of all seventeen official dedicated towns in BiH, thirteen governments on all levels (state, entities and cantons), and twelve civil protection departments at the entity and cantonal level. All profiles have been checked as follows: if they exist at all, and are they official or unofficial profiles.

Also, it is important to mention that in Sendai Framework for Disaster Risk Reduction 2015 – 2030, Social Media are mentioned as a tool of National Strategy for increasing the strength of public education and public awareness about risk reduction, and as a tool for promotion and improvement of understanding of the risks at global and regional level. However, one of the guiding principles in Sendai Framework is “Engagement from all of society” that can be reached by Social Media. On another hand, in “Performance audit report about activities of BiH institutions for execution of protection and rescue during natural and other emergencies” issued by Office for audit of institutions of BiH, no information about role of Social Media in civil emergencies is mentioned. “Development program of protection and rescue system at the level of institutions and elements of BiH” does not consider Social Media and its role and development in civil emergencies in next five years.

However, last information shows that 61.1% population in BiH has access to internet and according to that, in 2016 BiH was at the 74 place among 201 countries in the world.[7] In that environment, where two thirds of population use internet, none of the twelve of civil protection departments at the state or cantonal level has official page on twitter, and only Federal Civil Protection Department has facebook profile. Very discouraging is the fact that there is no unofficial page or profile on twitter or facebook for any of those departments. Only at the level of the Ministry of Security, Operational Coordination Center 112 has an official facebook page, but it is also intended for one-way communication.

BiH, as a complex state, has fourteen governments and twelve of them have official profile on facebook (only Government of Republic of Srpska and Government of Federation of BiH do not have facebook profile). On another hand, all except Government of Brcko District have unofficial facebook profile. However, only four governments of thirteen have official twitter profile (two cantonal governments, District
Brcko and Council of Ministers of Bosnia and Herzegovina) and unofficial is just one (Canton Sarajevo).

It is important to conclude that the highest governmental level in BiH and roof Civil Protection Department do not recognize importance of Social Media. Moreover, there are no unofficial pages and profiles that can be used in civil emergencies by citizens and “digital volunteers”.

At the local level, situation is a little better. After analysis of seventeen towns in BiH (seven in Republic of Srpska and ten in Federation of BiH), more then 60% of those towns have official facebook profile (ten towns), and all of them have unofficial profile. When it comes to twitter profile, situation is not so good, and only eight towns have official twitter profile but fifteen of them have unofficial twitter profile. Those unofficial profiles are very important for the community because they were made by virtual volunteers who can be very useful in the case of civil emergencies. People can get information and requests can be forwarded to officials by virtual volunteers who are administrators of those pages.

4. CONCLUSION

Social Media at all government levels, from local authority to state level, are undeveloped because many aspects are still new to the authorities. Lack of official facebook profiles shows poor interaction of local authorities with citizens. Moreover, there is a strong need for institutions, such as civil protection services and emergency warning systems, to adapt to the changing reality of Social Media and to ensure that they have robust plans to tackle any ethical dilemmas that social media usage may produce in the future.

It is interesting to notice that most of organizations are choosing not to use Social Media during disasters or emergency. They prefer to use phone and e-mails as better source of information. However, individuals prefer Social Media rather then phone and e-mails. According to analysis of facebook and twitter profiles of governmental institutions in BiH, most of them do not have official facebook or twitter profile but individuals have created unofficial facebook or twitter profiles which are dedicated to governmental organizations. Those unofficial profiles are alternative tool in the hands of citizens in case of civil emergencies. However, as an unofficial tools, without good control and monitoring, they could also present a huge obstacle to effective civil emergency management.

Here should be highlighted that the usage of Social Media is very complex and needs to be balanced between civilians and authorities (C2C,C2A,A2A,A2C), needs in different phases of emergency management (mitigation, preparedness, response and recovery) and opportunities (Public Information, Situational Awareness and Monitoring, Evaluation & Planning).

Also, Policy for Social Media in official institutions should be established as the first step forward. To do it in proper way, all the relations mentioned above have to be reconsidered, as well as all the players in the civil emergency field such as: in seekers, out seekers, in providers, out providers, helpers, reporters, resenders (retweeters), repeaters, readers, moderators, „digital volunteers“, etc.
LITERATURE

EFFICIENT OPERATION OF THE CORPORATION

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Assistant Professor Faculty of Security – Skopje, e-mail: tanjagerginova@gmail.com

Abstract: The operation of modern corporations determines three elements that exist simultaneously and are interdependent: favorable circumstances (opportunities), vulnerabilities and dependencies. In modern conditions in addition to meeting the security of citizens and the state, particular attention is given to the achievement of security in corporations, which includes achieving the protection of employees in the corporation, protection of property owned by business organizations protect profits, business success, and quality of the implementation of business processes in the corporation, protection of service users, protection of information and the reputation of the business organizations of various hazards, risks, property damage, criminal activities etc.. Within labor, the author will identify the elements for the efficient operation of the corporation as a modern business entity. Further, the author will determine the principles of the functioning of the corporation, including security management and which measures and activities are taken by management in order to achieve successful business operations and achieve the goals and values of the corporation.

Key words: effective business management, corporate governance, corporate security, security management

1. ELEMENTS FOR THE EFFICIENT OPERATION OF THE CORPORATION

The operation of modern corporations determines the three elements that exist simultaneously and are interdependent: favorable circumstances (opportunities), vulnerability (vulnerabilities) and dependence (dependencies). Each company as a business entity to realize business success is necessary to work in favorable internal and external environment. The operation of modern corporations can be observed in isolation but it is connected and is dependent on a number of circumstances and events influenced by globalization trends in the world.

In today’s open market competition every business entity has a chance of business success. In modern practice of corporations, two sets of mechanisms to ensure effective management and help resolve conflicts of interest that arise in corporate structures. It is about the internal and external mechanisms of corporate governance. Internal control mechanisms of corporations, boards of directors (Board of Directors is an organizational tool by which shareholders or owners influence the actions of managers, would provide the corporation to function in a manner that will achieve their interests), reward management, concentration ownership, relationship with interested groups involved, financial transparency and adequate disclosure of relevant information. In external
mechanisms of corporate governance include market for corporate control, legal infrastructure, protection of minority shareholders and the conditions of competition.\textsuperscript{2} At the same time, each company as a business entity is vulnerable whether the danger it is exposed to due to the fierce market competition, or resulting from the general insecurity. Therefore, in modern terms, if corporations want to work successfully, you must recognize future events and threats, and top management shall define primary business all challenges and act preventively.

For better performance of the company, it is a system of corporate governance, a system that manages and control the companies. In a narrow sense, the term corporate governance system that determines the owner provides top management placed to achieve the goals of the corporation and to fulfill obligations undertaken - create profit for the owners. Owners its position to govern the management with management contracts. The establishment of contractual relations solves the problem of alignment of interests between the participants in the processes taking place in the corporation.\textsuperscript{3}

As highlights D. Hruška, external and internal elements of corporate governance and relations between them define the system of corporate governance.

The system consists of a set of relationships:
- between the management of the corporation,
- its board,
- Shareholders and other holders of interests.

According to American author Margaret Blair, "the area of corporate governance include:
- corporate legal framework and practice decision-making in supervisory boards and directorates of corporations
- various aspects of corporate finance,
- laws regulating securities,
- bankruptcy laws
- laws governing the operations of financial institutions,
- relations with employees,
- contract law and theory, property rights,
- Compensation systems and systems of internal information and control".\textsuperscript{4}

Corporate governance provides the structure through which to realize the company's goals and determine the means of attaining those objectives and monitoring performance. Good corporate governance should enable and encourage the achievement of the objectives to provide quality management and economical use of resources, which is in the interest not only of the company and the shareholders, but also to all other interested parties. Corporate governance is now widely accepted as a mental tool for establishing an attractive investment climate which characterize competitive companies and efficient economic markets. In that sense, there is a correlation between efficient economic markets and economic growth as the micro-economic and macro-economic

\textsuperscript{2} Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 72.

\textsuperscript{3} Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 74.

level, but also connectivity, conditionality and interdependence of corporate governance and economic growth.⁵

Relationships between elements in the system of corporate governance is determined by a number of causal relationships that are called mechanisms of corporate governance. The purpose of the corporation may be diverse: to survive, to maximize market share, sales, profits, minimize costs, and more. In other words, the purpose of the corporation is subject to what the position of corporate control desires.⁶

Various empirical studies show that there is a direct correlation between the quality of corporate governance and performance of companies, which can be measured by financial indicators, rate of innovation, increased market share, the time it takes for new products out on the market, satisfaction customers, buyers and employees and others. From the above it follows that good corporate governance is a source of competitive advantage for the company, which will thus be more profitable, long-term growth and development.⁷

Good corporate governance means not only way to manage the company, but also their relationships and relationships with external stakeholders at the micro and macro level, and the legal and institutional framework. In this sense, corporate governance is the system by which the stretch and controlled companies. The system consists of a set of relationships:

- between the management of the corporation,
- its board,
- Shareholders and other holders of interests.

Corporate governance provides the structure through which to realize the company's goals and determine the means of attaining those objectives and monitoring performance. Good corporate governance should enable and encourage the achievement of the objectives to provide quality management and economical use of resources, which is in the interest not only of the company and the shareholders, but also to all other interested parties. Corporate governance is now widely accepted as a mental tool for establishing an attractive investment climate which characterizes competitive companies and efficient economic markets. In that sense, there is a correlation between efficient economic markets and economic growth as the micro-economic and macro-economic level, but also connectivity, conditionality and interdependence of corporate governance and economic growth.⁸

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From the above it follows that good corporate governance is a source of competitive advantage for the company, which will thus be more profitable, long-term growth and development.9

2. PRINCIPLES OF OPERATION OF THE CORPORATION

The next element for the successful operation of the corporation is the central role of business processes in all business segments, including efforts to improve their performance. Putting business processes focus on measuring the progress of the company became managers of the corporation into a new position based on serious analysis to define processes and criteria of success, tied to achieving the key objectives of company, especially the creation of values. The imperative of modern business systems in the world is the identification of business processes, their categorization and modeling, implementation monitoring and measuring business processes according to critical factors of success (Critical Factor of Success - CFS) and key performance indicators of business (Key Performance Indicators - KPI). For this purpose, any corporation develops a system for managing business processes (Business Process Management System - BPMS), which allows for continuous management and supervision of business processes. The results of monitoring and measuring the performance of business processes, management can use to compare with competitors, for defining the strategic goals of the company, but also for monitoring the success of implementing the strategy of the corporation, while the owners take corrective action and propose improvement business processes.10

One of the strategic objectives of the corporation's profits. But today in modern conditions of globalization in the world, the corporation is facing various risks and threats such as corruption, organized crime, terrorist activities, different kinds of abuse, embezzlement, fraud and other methods of alienation and appropriation of its property; political crime, general crime and economic crime; (Political crime - terrorism, sabotage, espionage, general crime - theft, severe and armed robbery, robbery, deprivation of motor vehicle, fraud, extortion, kidnapping, fire, economic crime - corruption, negligence, abuse of office powers, embezzlement, receiving and giving bribes, official secrets). Therefore greater attention is focused on the identification, assessment and management of risks, but also for protection and implementation of defense mechanisms (corporate security), so that the company's strategic goals to be met. In terms of security and protection, earlier in a number of enterprises, there were mainly minor damages that cost disgruntled individuals. Today's companies face the attacks of organized groups aimed at jeopardizing the operations and assets of the business entity. In this connection, they use different ways and means of threat, which can corporations to inflict great damage. To prevent or avoid this, companies are forced to establish effective systems to protect their management processes and business processes.11

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9 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 72.
10 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 76.
In order to exercise the efficient operation of the corporation, it is an important role of security management. Security management, an entity of the organization and management system for providing persons and property of the corporation. In his competence is: setting goals, planning, organizing and issuing orders, control, coordination and responsibility for the safe operation of the company. Management is he who devises overall system security, coordinates the work of other parts of the company in order to accomplish the objectives of corporate security without doing damage to the work process, and security management is responsible for: compliance with legal regulations, the training of workers for security, as well as mistakes in their work they will do.\textsuperscript{12}

Regardless of whether corporate security activities conducted by its own organizational units within the corporation or by hiring some specialized subjects beyond, it is important to analyze the organization of the corporation in the field of security and timely and professional, tailored to include relevant scientific institutions to draw up a safety assessment for the corporation, and forecast the possible risks and threats to corporate security, which means that you have to assess the threatening factors. The tasks of corporate security and observes them at an early stage effectively prevents any development of the threats that endanger the corporation and its operations. Thus understood corporate security includes: works for physical and technical protection of the company (Out-Source / Proprietary), works for Administrative Security (Administrative Security), safety of property and external partnerships (Personnel Security); Personal safety (Protective Security); Fire Protection (Fire Security); Working in Emergencies (Contingency Planning); Information Security; Security Manager (Executive Security); Security various business events (Event Security); Security contracted works with state structures; Investigations - a program for protection from crime and program for education and development of safety culture of employees (Security Education and Training Program), protection of intellectual ownership, commodity measures and the like. These massive global corporations started to apply the eighties of the XX century.\textsuperscript{13}

Security management is necessary to act preventively and to undertake measures and activities aimed at monitoring, prediction and assessment of the causes and forms of endangering persons, property and operations of the Corporation to be expected in the future; Specifying the responsibilities and powers of the persons working in the company's work around the protection of its vital values such as the company's reputation in the market, its corporate image (reputation), morale and motivation of staff, strategic development plans, competition analysis); determination of the expertise and motivation of the personnel working in the company; Organization and operation of natural-technical provision of all facilities belonging to the company; Protection measures related to the safety and health of workers, environmental protection, protection against fires, accidents and explosions; Measures to protect the operation of the corporation against all forms of corruption, various forms of abuse, misappropriation, fraud and other methods of alienation and appropriation of its property; Specifying the measures to protect the business and professional secrecy; Specifying the measures related to the control of the movement and residing on external objects and persons in

\textsuperscript{12} Taken from Daničiḱ, M., Stajiḱ, Lj., (2008) \textit{Private security}, Higher School of Interior, Banja Luka, p. 28\textsuperscript{th}.

\textsuperscript{13} Gerginova, T., (2017) \textit{Corporate security}, Publisher Faculty of security – Skopje, p. 59\textsuperscript{th}.
space which belongs to the business entity; Organization and operation of information systems and providing those assets and affairs of the corporation, especially measures to protect information; Harmonization of regulations acts in all areas of security, with national regulations and standards of the EU; Assessment of the degree of endangerment of persons in corporation with activities related to the protection of its vital values.\textsuperscript{14}

Today, corporate security is an integral part of the process that manage business risks within the business entity. Corporate security is constantly involved in the mechanisms of corporate governance, and working to establish plans and implement measures aimed at: the protection of customer service, protection of employees in the business organization, protection of property owned by business organizations, protection of information and the reputation of the business organization of material damage, criminal activities etc.\textsuperscript{15}

Administrative Security Corporation, its development and implementation is the task of all decision-making levels in the corporation, not just the organizational units for corporate security. According to Stipe Baljkas includes the following components: policy (rules of conduct, the protection of property and management, information security, business ethics, conflict of interest, etc.); plans (access control, use, evacuation, fire protection, technical protection, etc.); procedures (standards, prevention and avoiding attack behavior in case of danger, using secret data, safe use of the information system, etc.).\textsuperscript{16}

Physical security company accomplished the work of the security service, which consists of a number of employees (permanent employees or engaged members of the specialized agencies to provide services for security), carrying weapons and whose task is the protection of buildings and persons them. Technical protection means mechanical and electronic protection of the building of the corporations and individuals in them and organizational mostly set in the framework of the security service in those companies in which such service is organized.\textsuperscript{17}

Some authors in the measures of physical and technical security enumerate: the security of all people during their stay in the company, and particularly the management of the corporation; providing all facilities and spaces of the corporation; providing all kinds of gatherings organized in the premises or the area of the company, especially those that appear certain important persons from the management of the corporation or persons outside; providing transportation for special needs of the company; security and protection of information systems, data and documents of the corporation.\textsuperscript{18}

\textsuperscript{14} Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 136.
\textsuperscript{15} Gerginova, T., (2017) Corporate security, Publisher Faculty of security – Skopje.
\textsuperscript{16} Пошироко види: Baljkas Stipe, (2011) "Projektiranje sustava korporativne sigurnosti" Četvrta konferencija o korporativnoj sigurnosti > Korporativna sigurnost, Lider & MBOS, Zagreb, 10.03.2011.
\textsuperscript{17} Taken from Danićiḱ, M., Stajiḱ, Lj., (2008) Private security, Higher School of Interior, Banja Luka, p. 22th.
\textsuperscript{18} Пошироко види: Скакавац Здравко, Малинович Драгана, (2011) "Улога менаџмента безбједности у заштити корпорације од криминалитета", у: Научни скуп «Дани безбједности» на тема: "Развој система безбједности и заштите корпорација" (Зборник радова), Факултет за безбједност и заштиту Универзитета Синергија, Бања Лука, стр. 59.
Safety of property and external partnerships - In the domestic market present many foreign corporations in the period after 2000, many invest in the countries of the former communist regimes, and they establish banks, factories, companies and agencies. Foreign corporations impose their standard organizations for corporate security, and offer things for the provision of domestic firms that can meet international safety standards. This phenomenon significantly influenced the improvement of the non-government sector on security and domestic companies in these areas began to adopt international standards pertaining to the organization, the technology and the training of its staff, thanks to the open tenders they got things to protect diplomatic and consular missions and providing international sports competitions. This process greatly influenced and closing, i.e. the inability to hold on to more open market, semi-private security agencies that have been established in the former socialist countries during the 90s of the last century. Thus the arrival of foreign companies in these countries largely influenced raising the quality and scope of services provision.

Protection of persons and protection of work – Under the term protection at work is a set of technical, health, legal, social and other measures and activities aimed at preventing and eliminating dangers and harmful effects that may endanger the lives and health of employees. Given that injuries at work and occupational diseases, causing damage not only to the employees and their families, but also to business and to the wider community, safety at work is carried out as an organized activity whose aim is to provide conditions in which there will be no danger to life and health or conditions in which these hazards will be reduced to a minimum.19

Fire protection - According to D. Mladjan, fire damage may be classified according to various characteristics. Classification of the consequences of the event can be run according to the time and place of manifestation of the consequences caused by the action of the dangers, depending on the task that needs to be resolved, according to the objects that act danger and scope (affect financial stability organization). Direct damage from the fire is immediate harm to health, property or property interests. It covers all losses and damages suffered all the objects important to the life and work of the man, who found themselves in zones of influence of the danger. Indirect damage consists of loss, missed earnings and additional costs that will have facilities that failed in the zone of action of danger to protect and damages caused by the disturbances and changes in the structure of the newly created business relationships, infrastructure, additional costs incurred due to the need to implement measures to eliminate the consequences of the events. Specific forms of the consequences of fire, explosion and disaster can be loss of life or personal injury; loss of capital: damage to property; destruction of infrastructure; environmental damage; financial losses; allocating additional funds; epidemics; migration; displaced persons and refugees; lack of food insecurity and more.20

The occurrence of fire is a constant danger that monitors each company. In this regard, measures for fire protection is their legal obligation, and these organizational measures are taken either by the special services of fire protection or within the internal security. Regardless of organizational form, fire protection is an integral part of corporate security; where there is a legal obligation to train workers of fire protection intended as a


20 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 120th.
general prevention employees.21 Any serious company that wants to act in the direction of preventive fire protection pays great attention to the organizational, technical and other measures and activities aimed at eliminating the dangers of fire occurrence, their early detection and prevention of spreading, and effective extinguishing. The system for fire protection, planning, prescribing measures to protect buildings, organizing entities on fire protection, financing of those activities, training and training of enforcement agents and normative regulation of fire protection in order to protect the life, health and safety of people and property, the environment and the nature of fire, socially and economically acceptable risk.22 Fire safety check involves installation and maintenance facilities of the corporation and taking appropriate preventive and technical measures to prevent the occurrence of fire inside those buildings. It primarily involves maintenance in proper condition appliances, equipment and means for fire extinguishing, and the devices and installation of fire detection. Furthermore, measures for fire protection include: maintenance in proper condition of electrical, ventilation, heat and other installations and storage facilities for flammable materials, as well as periodic inspections and certification of equipment by the strings and authorized services. All Member States of the European Union have their own national laws in the area of fire prevention, but shall be obliged to harmonize. Standards, technical papers, harmonize in the course of their manufacture because there is cooperation of reference laboratories of European countries (EGOLF) and national standardization organizations. An obligation of the Member States 80% of the standard to be implemented shortly and identical to European standards. That goal is still far from reaching even to Germany and France, but the general orientation is clear and that is that what we need to do first is to harmonize standards in the field of fire protection. Practically, one of the first adopted European standards (EN 3) applies to fire extinguishers.23

Working in critical emergency situations - In a state of emergency is necessary to successfully operate managers, coordinate and controlled, and managers need to evaluate actions to be taken to implement actions that are necessary at the moment and plan next actions that they will have to be taken. An extraordinary situation requires quick and decisive action, because otherwise the consequences could be large in scale. In an emergency situation, it is necessary to take a risk and costs and losses for the protection of people. Emergency situation creates tension and pressure on managers who are not sure, but must quickly decide which can cause a sense of powerlessness. Emergency managers have great difficulty in redefining the situation and often teach the groupthink that occurs in a very cohesive groups that have occurred in shared experiences and the need to unite ahead of the threat. Sometimes it does not matter "collective madness" in which the preservation of group harmony and the relationship among members prevails the ability of the group to critically evaluate the problems associated with decision.

21 Taken from Daničič, M., Stajić, Lj., (2008) Private security, Higher School of Interior, Banja Luka, p. 22th
23 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 123th.
making, and it often happens that managers and advisers by itself rule out the responsibility of the group. 24
One of the basic concepts that are mentioned in connection with the action in emergency situations, crisis management. Crisis management represents an important and integral part of the responsible management of the corporation, in which most business decisions are assessed risks and chances, especially due to increased uncertainty and rapid change cannot exclude a crisis or emergency. In the process recognizing existing internal potential, despite recognizing the mistakes and shortcomings are crucial to overcome the crisis situation. Crisis management is defined as an activity aimed at overcoming situations threatening the survival of the corporation, i.e. as planning and implementing measures to ensure the basic objectives. 25 Important features of crisis management are more intensive use of resources and methods needed to prevent, control and establishing overcome emergencies.

- If it comes to activities for crisis prevention, then talk about pre-emptive or anticipatory crisis management, i.e. early warning system, analysis of potential, risk management and policy flexibility as a key, but not the only tool of preventive management.
- For reactive crisis management to talk in terms of providing basic existential variables in the emergence of crisis. It kind of crisis management characterizes clear goals, such as achieving a certain liquidity or benefit, and using tools for identifying crisis.

Information security is defined as the condition of confidentiality, integrity and available information, no matter in what form exist. This state is achieved by appropriate measures and standards for information security, as well as support on the organization of work of planning, implementation, verification and conclusion of these measures and standards. The confidentiality of information means that it is available only to those persons authorized to use. Integrity means protecting data from accidental or deliberate alteration, while not guarantee availability of authorized users of the system that will be available at any moment when you need them. Information security and information security are not synonymous, because information security includes protection of all information, regardless of the form in which they are located. 26
According to the definitions of certain authors, the relationship between information security and operations of the Corporation has four different aspects. The first refers to the process of gathering business information to competitors, and the second aspect is a problem of storing business information in the databases. Economic aspects of information security, or "cost" systems to protect information and "cost of loss" due to their inadequate information protection, represent the third aspect of that relationship. As a fourth aspect, these authors cite information-analytical provision of operations of corporations. Namely, each country in order to secure their own economic development, we must create the optimum conditions in terms of ensuring transparency in the conduct

24 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 124th.
25 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 125th.
of economic processes and maximum awareness of all stakeholders on the state of the market, i.e. Prevention of bureaucratic abuse and unfair competition.  

Security Manager - Security Manager protection in practice often amounts to transporting a person (or his / her family) in workplaces and other meetings, events, conferences, lunches / dinners and the like, but they are often to that protection They refer to as something that is a necessity, and load. The most common types of personal danger that confronted the owners, directors, managers and other managers in the corporation tied to various crimes, including potential abduction, extortion, robbery, burglary, physical attacks and harassment by hostile persons from different categories - from among disgruntled employees through activists of "green" to members of the business competition. If the activity of the corporation is tied to a specific area such as chemical, pharmaceutical, biological research, nuclear energy, military-industrial complex, electronics, informatics, holders of managerial positions in companies can face harassment, pressure or feel the consequences of offenses or crimes of hostile people that actually do not have any personal contacts.  

Security diverse business events - corporate security covers matters related to the protection of buildings, the premises of the companies, the production process, machinery, plants etc. The planning of security measures and the protection of various business / working events by making appropriate safety assessment, the content of which depends on several factors, primarily the number and structure of participants and whether the working meeting (conference, event) is held in a closed or open process. The plan of care is determined by the holders of tasks Security Sector Corporation, laying down concrete measures and activities that will be implemented in order to achieve the required level of security and reduce the risk to participants. In order to prevent violent or secret intrusion into buildings and the area where the work place events in order to accomplish the overall security of the participants of these meetings will be taken and necessary measures of fire protection and technical protection measures that include: indoor and outdoor video surveillance, mechanical protection, alarm system and video system.  

Security contracted works with state structures - some of the security risks faced by modern corporations can derive from concluded business agreements. In fact, the terms of the agreement cannot create an obligation which the business entity is not able to fulfill. To reduce these risks, it is the corporation to be developed and implemented a plan that would provide the necessary communication with internal and external interested parties. That plan should include: communicating with stakeholders in the event of a crisis or damaging event, engaging relevant external stakeholders and enable effective exchange of information; internal reporting on the impact and effects of the assessed risk the relationship with stakeholders; availability of information in accordance

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27 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 131.  
28 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 131th.  
29 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 131th.  
30 Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) Corporate security system, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 132th.
with the law; providing feedback in the process of communication; providing transparency and building trust in the corporation etc. 31

Program of protection from crime - basically crime that endangers people and property companies is the same that threatens society as a whole, whose holders are usually motivated by greed, and the desire to harm the constitutional order, security the state and the socio-economic system. However, the actual shape and volume of crime at the expense of individuals and property companies cannot be accurately displayed. This is because the "dark figure of crime" is particularly high among the crimes against property and against official duty. Regarding security of persons and property, of particular importance are crimes against property companies, and other crimes carried out in the business area of the company, institution and organization. These are primarily crimes of general criminality, and offenses against the state, as well as offenses of economic crime. The pluralism of ownership relations, new forms of threats to persons and property companies in new economic conditions on the one hand and the role of the police and the organization and activity in the system for providing, in turn, further complicate and deepen this problem in the countries of former Yugoslavia (Daničić, 2005).

Accordingly, criminal attacks on persons and property companies are manifested by carrying out various criminal acts of (political crime - terrorism, sabotage, sabotage, espionage, general crime - theft, severe and armed robbery, robbery, deprivation of motor vehicle, fraud, extortion, kidnapping, fire, economic crime - corruption, negligence, abuse of official position or authority, embezzlement, receiving and giving bribes, indulgence official secrets); and lately frequent dilemmas in relation to computer crime. The most common are cases that fall into the general criminality, but it should be borne in mind that many crimes and their perpetrators in the field of economic crime and never found. Finally, the number of political crimes in practice is not large, but it should be borne in mind that such acts are characterized by the greatest social danger (Daničić, 2005).

For the business operations of modern corporations is important to present the risks of computer crime and cybercrime. Computer crime and cybercrime refers to any illegal activity performed with the help of computers. However, Interpol 32 makes a significant difference depending on whether the computer is a target or a means: high-tech – that is high tech crime involves attacks targeted to devices and computer networks. While the other group includes the forms of traditional crimes for which the means of their execution are significantly neglected as a result of technological development.

Based on the conducted analysis, it has been found that cybercrime along with corruption and the migration crisis is a key threat to the business operations of corporations in many countries. 33 In the Criminal Code, many countries of the former Yugoslavia have a special chapter on high-tech crime, describing the criminal activities that belong to this type of crime:

- Damage to computer data and programs;
- Computer sabotage;

32 http://www.interpol.int/Crime-areas/Cybercrime/Cybercrime
– Making and importing computer viruses;
– Computer fraud;
– Unauthorized access to protected computers, computer network and electronic data processing;
– Prevent and limit access to the public computer network;
– Unauthorized use of a computer or computer network;
– Making, supplying and giving another means of committing crimes against the security of computer data.

It should be mentioned the document for assessing the risks of difficult and organized crime. It is an international strategic document (eng. Serious and Organised Crime Threat Assessment – SOCTA) dealing with various forms of tough and organized crime including cybercriminal. However, the estimate is still not favorable due to the lack of some important instruments for its use.\(^{34}\)

To ensure proper functioning of the corporation and protection from criminal conduct, it is necessary to continuously take a number of measures and activities by the corporation and by cooperating with the police, the Public Revenue Office and other relevant state institutions. Protection Program of crime includes the following activities (Bakreski et al., 2012):

– Constant monitoring and making analyzes of crime.
– Time distance - from the moment of committing the crime to his perceiving, i.e. detecting a rule passes long time, sometimes for months or years. The reasons are: failure by the victim or a third party, insufficient level of cooperation of the business entity and the relevant police services and others.
– Expertise of the perpetrators, who are often highly educated individuals, experts, professionals, entrepreneurs, managers, owners and holders of labor activity, i.e. people who possess specific knowledge and skills about economic performance and legal framework of the activity they are dealing with.
– Complexity - the economy is the specific area of human activity, and labor movements are complex, and therefore economic crime is a specific and complex. The diversity and complexity of the legal framework which determines the framework of operations of business entities logically leads to complicated modus operandi of these offenses.
– Organization - links to high-ranking individuals from the business, social and political life in the community who abuse their position and social influence, make them particularly dangerous forms of crime (the so-called crime of "white tie").
– Mass - economic crime is a relatively frequent occurrence in modern societies, and the offenses in this area as a rule account for about 10% of the total criminality.
– Unlawful gains (or caused damage) were significantly greater than is the case with classical criminality and negative consequences, unless the injured legal entity reflects the economic system, and the wider community.
– Scalability and inventiveness of the perpetrators – economic crime is an area with great potential for innovation, changing the method of execution of the crime, i.e. adapting to new circumstances, changes in regulations and the

\(^{34}\) http://arhiva.mup.gov.rs/cms/resursi.nsf/SOKTA_procena_pretnji.pdf
development of technical tools, which greatly complicates its discovery and proof.

- Property status of the accused, which brings a better chance of Defense (hiring more lawyers, i.e. the possibility of an informal survey of the actual situation or conduct informal "private investigation" defense).

**Education program and develop a culture of security staff** - Different authors suggest that the education system of employees in order to raise their level of awareness and safety culture is an indispensable factor in reducing the harm is threatened by the corporation from different types of threats and intimidation. In this connection, it emphasizes that education must be conducted as at the recruitment stage and continuously during operation of the company. In practical terms, it is important that programs for education of employees to be directed to that prescribed processes and procedures of the Corporation to be realized in practice, and the employees must be encouraged initiatives to changing processes and procedures, especially in cases where existing are inapplicable in practice and where necessary the adoption of new, primarily due to new situations brought about by changes in technology and advancement in development of workflows. Employees are required to appropriately react and act in relation to the identified gaps and omissions, and urgently needed to inform higher levels of management in the company was identified and the measures and actions. Senior managers in the company are obliged to constantly monitor and perceive flaws and irregularities in the implementation of business processes, require verification of the progress of work processes and to identify the same or similar situations threatening other objects or areas of the corporation. After the procedure of checking the progress of a workflow, it is necessary to conclude and decide whether the registered security event is caused by incidental or omission of the usual pattern of behavior, whether its cause is subjective position of individuals or objective fact, occurring as a number of unforeseen circumstances and situations, or to check whether the applicable work rules and other safety procedures are in line with reality, provided that not consistent to conclude that they are inapplicable.\(^{35}\)

### 3. CONCLUSION

Corporate security is without doubt a concept and refers to issues related to security in companies or corporate security is aimed at detecting crime, fraud and offenses in the corporation. Various crimes of (political crime - terrorism, sabotage, sabotage, espionage, general crime - theft, severe and armed robbery, robbery, deprivation of motor vehicle, fraud, extortion, kidnapping, fire, economic crime - corruption, unethical operation, abuse of official position or authority, embezzlement, receiving and giving bribes, disclosing official secrets); and lately frequent dilemmas in relation to computer crime. This means that the existence of an effective system of corporate security, the company will be protected from various threats that may impede the normal operation of the corporation, and the protection of property, the business owners and employees of various risks and threats an integral part of modern living. The modern corporation as a business entity should achieve business success. Therefore the author in the paper defines the three elements for the efficient operation of the modern corporation –

\(^{35}\) Taken from Bakreski, O., Trivan D., Mitrevski, S., (2012) *Corporate security system*, Publisher Chamber of Republic of Macedonia for private security, Skopje. p. 135\(^{th}\).
opportunities, vulnerabilities and dependencies. Further the author speaks about internal and external mechanisms of corporate governance.

Corporate security is constantly involved in the mechanisms of business management, so that it protects the normal flow of business processes, removes acute security problems and employees creates security conditions. With that corporate security is an integral part of the process that manage business risks within the enterprise, and working to establish plans and implement measures aimed at: the protection of customer service, protection of employees in the business organization, protection of property ownership business organizations, protection of information and the reputation of the business organization of the material damage, criminal activities etc..

**REFERENCES**

Abstract: Authorized or unauthorized presence control, detection and alarming of incident situations in high voltage power transformer stations are essential elements in ensuring the quality functioning of the power distribution facilities and the entire power distribution system. The main purpose of these systems is: discourage potential unauthorized access, inadequate and unsafe work in the facility, identification of persons and other causes of alarm situations, detection of movement and other incidental situations in the facility, and identification of persons in the facility. In addition to these basic functionalities, it is also necessary to implement mechanisms of continuous monitoring, data archiving, reaction to the incident situation, etc. The paper presents the authors' experiences in the development and implementation of company systems of technical protection of substation transformers of “EPS Distribution” on the territory of Vojvodina. Technical solutions, organizational problems and economic and financial aspects are presented.

Keywords: technical protection system, power transformer stations, access control, alarm control, video surveillance.

1. INTRODUCTION

The technical protection system in the consumer area of Vojvodina is an integrated security system for remote monitoring of electricity facilities. This system combines functions:

- access control system, based on contactless identification cards,
- alarm control system based on dual sensors for motion detection and
- video surveillance system, based on IP cameras with internal memory.

The construction of a technical protection system of electricity facilities in the Vojvodina consumer area of Vojvodina for the purpose of person controlling access and alarm and video surveillance enables better and more efficient protection of property, as well as monitoring and recording the presence of the person in the company's facilities. The main objectives of this system are to increase the reliability of the power system and the safety of workers and equipment engaged in electricity facilities. It is also the goal of ensuring that the system itself is available so as to ensure the confidentiality and integrity of information.
2. SYSTEM DESCRIPTION

The technical protection system consists of equipment in control centers in the branches of the company and the equipment at the electric power facilities. In all control centers, system servers are installed with the database and the corresponding software. Servers download data from devices on electricity facilities, enter data into the database and enable authorized users of the system to monitor power facilities and view archived events. The basic scheme of the system is given in Figure 1. [2]

![Figure 1: Principal scheme of the technical protection system](image)

Authorized persons in the computer network of a company, through a control application, monitor a particular group or all electric power facilities in the system, in accordance with their authority. The control application displays the names and current video views of the selected power facilities, while the status of these objects is highlighted in color.

Installed equipment on electric power facilities is designed for outdoor installation and is mounted on construction objects and pillar carriers of visible red color, with visible textual notices and warnings. Installation points of equipment are specially designated for each electricity facility.

The equipment installed on power facilities is as follows:
- access control and alarm control device (terminal),
- contactless readers of identification cards for recording entry and exit of persons,
- alarm sensors for motion detection, ie. presence of persons,
- IP cameras with internal memory,
- alarm siren with stroboscopic light and
- backup battery power.

Generally, the equipment is installed in electrical facilities as follows:
- Metal pillar mounts for mounting the equipment are installed at the input and, if necessary, in the transformer field.
- Two readers of identification cards for control and access to the facility are placed on a metal pillar carrier for fitting equipment at the entrance.
- In the pillar brackets, an access control and alarm monitoring device is installed with the appropriate software.
• IP cameras are mounted on pillars and on construction sites and are directed to the transformer field, entrances and enclosures of objects. The cameras are installed in the appropriate outboard housing, with the appropriate software. Each camera is provided with a memory card for recording.
• External motion sensors are placed on the building site and on pillars so that they cover the space around the electricity facility, the input and the transformer field.
• Alarm siren is installed on the pillar at the entrance or on the building site.
• Communication cabinet with L2 PoE switch, FTP splitter, power strip and uninterruptible power supply have been installed.

3. SYSTEM PROTECTION

Providing the technical protection system of protection, access control and alarm and video surveillance, from possible violation of its security attributes, has been realized in several ways: [5]
• high quality equipment is installed on the buildings itself, designed for operation in all weather and other conditions characteristic of electric power facilities, placed in appropriate housings or cabinets;
• there is control of access to cabinets (tamper);
• communication from the electricity facilities to the seat of the branches, where the system servers are located, is provided by encryption;
• work in offline mode is provided;
• the concept where the servers are not installed on every power facility, but in the headquarters of the branches, which enabled quality telecommunication connections, raises the level of security both for operational work and the analysis of archived data;
• restrictive relationship to the right of access to the system through client applications.

A special aspect is the organization of the company in terms of using the system in real time, as well as in the case of post festum data analysis.

In the realization of this system all the protection mechanisms applied by the company apply to other systems in the field of information and communication technologies. From the protection of data centers at the physical level (fire protection, overvoltage, power supply, unauthorized physical access to equipment, etc.) to protection against attacks on the system through the information and communication infrastructure.

Normative regulation of the protection of the information and communication system is a special area and is the subject of the activities of the state, judiciary and management and legal structures of the company. Another aspect of protection of the information and communication system is the design and introduction of technical measures for the realization of protection of the entire information system. The goal is to provide system security attributes: [1]
• Availability – Ensures survival of the service despite attacks that aim to threaten them. Such attacks can be triggered from any level. At the physical level, a malicious user can, for example, to interfere with communication on physical channels. At a higher level, the routing of the routing protocol can lead to the disintegration of the network.
• Confidentiality – Ensures that some information is never made available to unauthorized entities. Leakage of confidential information can have unimaginable consequences.
• Integrity – Ensures that the message will never be compromised. The message can be compromised due to harmless failures, such as interference in radio transmission, or malicious attacks on the network.
• Authentication – Allows any node to identify the identity of the node with which it is currently communicating. Without authentication, the attacker could masquerade as a knot and thus gain access to information and resources, which would affect the work of other nodes.
• Not denial - means that the sender of the message can not deny that he has sent it. Missing is very important for the detection and isolation of compromised nodes.

Finally, the purpose of these systems is to ensure the continuity of business processes of the company and to this end it is also implemented on almost all high-voltage electricity facilities in the consumption area of Vojvodina, with a tendency to expand to medium-voltage electricity facilities. In order to achieve this level of acceptance of the system, both by the user and by the management of the company, the system had to show its use value, robustness and stability in operation.

4. PROGRAM MODULES OF SYSTEM

All program modules can be started from any computer within the enterprise computer network by an authorized user.

The system contains the following software modules:
• server module,
• monitoring application,
• administrative application and
• reporting application.

The server module is an application launched on a system server that calls all devices from the electricity facilities, downloads data and writes them to the database and provides support to all client applications in the system;

The monitoring application is a client application that all authorized users can run in order to monitor the group or all objects in the system, in accordance with their privileges.

The monitoring application allows:
• an insight into the current status of all objects and associated motion detection sensors that are monitored by this monitoring application;
• real-time monitoring of alarm situations (type, time and location of the alarm and current image given by the assigned camera);
• real-time display from the camera that is responsible for the motion detection alarm sensor that triggered the alarm situation;
• search for snapshots by location, time, and type of event.

The administrative application contains the following functions:
• maintenance of data on the structure of the system;
• maintenance of data on the structure of the company;
• maintenance of data on employees;
• maintenance of identification card information;
• maintenance of data on authorized system users;
• defining and maintaining a timing scheme for the activation or deactivation of the sensors.

Reporting application allows generating the following reports:
• A chronological report on alarms that shows and recordings recorded by the camera;
• Report on the activation or deactivation of motion sensors for motion detection;
• Review of recordings made by the camera in an alarm situation;

Each of these reports can be formed for the selected object, sensor, organizational unit or entire enterprise for the desired time period. The system also enables the export of part or all data from generated reports at the request of an authorized person in any Microsoft-supported format.

5. SYSTEM OPERATING PRINCIPLE

When entering the power facility under the technical protection system, a person identifies himself with his identification card on a contactless card reader, mounted on a pillar carrier and connected to the terminal. The terminal is mounted inside the pillar carrier in the electronic equipment box.

Data on entering the electricity facility, location, name, surname and person's identification number and time of entry are recorded in the database on the server.

If the authorized person entered the facility:
• motion sensors for motion detection will be deactivated,
• the terminal will forward information on the authorized presence of the server,
• in the monitoring application, the views of that object will be highlighted in green.

The person in charge of supervision can see the faces currently present in the facility.

If an unauthorized person entered the facility:
• motion sensors for motion detection will be activated,
• alarm siren with strobe light will switch on,
• the terminal will forward the information about unauthorized presence to the server,
• in the monitoring application, sound and visual signaling will be activated,
• in the monitoring application, the views of that object will be marked with a blinking red color.

If the authorized person confirms the alarm:
• in the monitoring application, visual and audible signaling will be excluded,
• in the monitoring application, the views of that object will be highlighted in red during the alarm situation, while the active sensor for detecting movement at the power facility is active.

Alarm status data, sensor name, object name, activation time and deactivation of the sensor are recorded in the database on the server. In all surveillance applications, the current video view from that object will be displayed, so that the control center can visually monitor real time alarm or any other situation. IP cameras are recorded continuously, regardless of whether there is an alarm situation and whether there are persons on the facility. The video is continuously recorded on the server, and after the activation of the motion detector on IP cameras, it is also stored in the camera's internal memory. In the event of a disconnection, the video clip archived in the camera's internal memory may be downloaded locally or remotely after the connection has been
established and transferred to the server. The alarm system also works in the event of a loss of offline connection, so that the data on the right of presence is undernourished in the terminal.

6. BASIC SYSTEM CHARACTERISTICS

The technical protection system of electricity facilities in the Vojvodina consumption area is an independent system for control of the presence and alarm and video surveillance of power facilities that is a complete functional unit, but it is also connected with other identification systems. User identity cards for identification in the system for record of working hours and access control are unique and are used for authorization in the technical protection system.

Access control and alarm monitoring devices and motion detection sensors are based on digital technology, while contactless readers and identification cards are based on radio frequency identification technology. The system has the ability to expand the number of faces, devices and objects. All computers and devices are connected to a company's unique computer network. Data capture and processing are centralized in the database on the server. The system collects centralized data from all electric power facilities, and real-time monitoring functions, administration and reporting are centralized at the enterprise level. Alarm with alarm strobe with strobe light is local, but each alarm situation sounds and displays in all monitoring applications that monitor this alarm device. Terminals communicate with servers by Ethernet connection (optical links or directed radio relay links). If the communication between the terminal on the power facility and the server is interrupted, the access data is remembered in the terminal's internal memory and when the communication is re-established, they are transferred to the server. The terminal automatically detects a communication interruption and attempts to reconnect until it establishes a connection to the server.

The system supports operation in the following modes: [3]

- on-line operation – when a device is communicated with the server, all events are currently logged into the database, processed and displayed on all monitoring applications that monitor the device; All data on authorized passages and alert situations are available through reviews and reports;
- off-line operation – when the device communication is interrupted with the server, through the device buffer, which remembers data on registered approaches and alarm situations, and through the internal memory of the device that keeps the activation or deactivation of the sensor, the system is working smoothly. When a connection to the server is established, the system automatically switches to network mode and transfers buffered data to the database.

The terminal has eight alarm inputs, two or three of which have been used to connect the motion sensor detection sensors. At the first alarm input all tamper switches of the alarm sensors for detection of motion and terminal are connected, so in case of physical removal of the sensor there is an alarm situation. All alarm inputs are configured as unconditional alarms and are activated on the sensor initiative regardless of the timing scheme for activation or deactivation of the sensors. Configuration as a conditional alarm in accordance with a predefined timing of activation, ie. deactivation, is used during the power facility remount. Also, all alarm inputs are defined as instantaneous, except for the alarm input to which the alarm sensor for detecting movement at the input or output, which has a time delay of 20 seconds. In addition, all alarm inputs are defined
as audible and activate alarm siren with strobe light. The power supply of the terminal, contactless reader identification cards and motion sensor detection sensors is provided via backup battery power, which is connected to the inverter of the electrical power facility. The system automatically backups data to the selected location within the file system at a defined time.

7. SYSTEM IMPLEMENTATION

The first and second phase of construction includes high-voltage electricity facilities and individual business buildings. Table 1 gives an overview of the electricity facilities under the technical protection system. [5]

Table 1. Overview of electricity facilities under the technical protection system

<table>
<thead>
<tr>
<th>ED Novi Sad</th>
<th>ED Subotica</th>
<th>ED Sombor</th>
<th>ED Pančevo</th>
<th>ED Zrenjanin</th>
<th>ED Ruma</th>
<th>ED S. Mitrovica</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS Novi Sad 1</td>
<td>TS Subotica 1</td>
<td>TS Sombor 1</td>
<td>TS Pančevo 3</td>
<td>TS Zrenjanin 1</td>
<td>TS Ruma 1</td>
<td>TS S. Mitrovica 1</td>
</tr>
<tr>
<td>TS Novi Sad 2</td>
<td>TS Subotica 2</td>
<td>TS Sombor 2</td>
<td>TS Pančevo 4</td>
<td>TS Zrenjanin 3</td>
<td>TS Ruma 2</td>
<td>TS S. Mitrovica 3</td>
</tr>
<tr>
<td>TS Novi Sad 4</td>
<td>TS Subotica 4</td>
<td>TS Apatin 1</td>
<td>TS Vršac 1</td>
<td>TS Zrenjanin 4</td>
<td>TS Pećinci</td>
<td>TS Šid</td>
</tr>
<tr>
<td>TS Novi Sad 5</td>
<td>TS B. Topola 2</td>
<td>TS Odžaci 2</td>
<td>TS Vršac 2</td>
<td>TS Kikinda 1</td>
<td>TS Indija 1</td>
<td></td>
</tr>
<tr>
<td>TS Novi Sad 6</td>
<td>TS Bajmok</td>
<td>TS Vrbas 1</td>
<td>TS Kovin</td>
<td>TS Kikinda 2</td>
<td>TS Indija 2</td>
<td></td>
</tr>
<tr>
<td>TS Novi Sad 7</td>
<td>TS Ada</td>
<td>TS Vrbas 2</td>
<td>TS Alibunar</td>
<td>TS N. Bečej</td>
<td>TS S. Pazova</td>
<td></td>
</tr>
<tr>
<td>TS Novi Sad 9</td>
<td>TS Kula</td>
<td>TS Debeljača</td>
<td>TS Begejci</td>
<td>TS N. Pazova</td>
<td></td>
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<tr>
<td>TS Futog</td>
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<td></td>
<td></td>
<td>TS N. Crnja</td>
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<td>TS Temerin</td>
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<tr>
<td>TS Žabalj</td>
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<td></td>
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<tr>
<td>TS R. Šančevi</td>
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</table>

The third phase of construction would include eleven remaining high voltage power facilities. Figure 2 gives an example of the coverage field for one power facility (TS Ruma 2).
Figure 2. Coverage field

Figure 3 gives an example of a single-line scheme of the technical protection system for the of one electric power facility (TS Ruma 2).

In each electricity facility there is:

- Telecommunication cabinet where FTP cables IP camera and controller for motion sensors, RFID readers and alarm siren are terminated on the FTP distributor.
- Cisco WS-C2960-24PC-L PoE Switches and Uninterruptible Power Supply are also in the telecommunication cabinet.
- From 3 to 7 IP camera manufacturers Axis models P3364-VE and P1354 with memory cards. The cameras are mounted on metal pillars, lighting poles or construction objects.
- Pillar rack at the input for fitting the equipment.
- Access control and alarm controller SD100VEB with continuous power installed in the metal pillar.
- Two SD card readers model SD25 mounted on a metal pillar.
- From 8 to 14 sensors for detecting movement for external mounting of the DSC model LC-171. Detectors are mounted on a metal pillar, lighting pillars or a TS object.
- Installation cables

Figure 3. Single-line scheme of the technical protection system
8. CONCLUSION

Realization of the technical protection system of electric power facilities in the Vojvodina consumption area as an integrated security system for access control and alarm and video surveillance enabled better and more efficient protection of the assets of the company through the reduction of thefts on electricity facilities, and a higher level of safety at work through supervision and records. The presence of a person on electricity facilities. The system fully fulfills its role in discouraging uninvited persons from potentially unauthorized access, preventing inadequate and unsafe work on facilities, identifying faces and other causes of alarm situations, detecting movements and other incident situations in the facility, and identifying persons in the facility. Mechanisms of continuous monitoring, data archiving and reaction to incident situations have been implemented. The technical protection system ensures better and efficient operation of the electricity facilities, more reliable operation of the entire electrical power system and better service of electricity consumers. Therefore, the functioning of a technical system for the protection of electricity facilities, as well as the protection of this system against high-tech crime, is of great importance.

REFERENCES

SCOPE OF STRATEGIC NATIONAL SECURITY OF AUSTRIA

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Abstract In its history, Austria has gone from a powerful empire to the occupation of its territory by the winners of the Second World War. Modern Austria is a member of the European Union and also a militarily neutral country which actively participates in international security organizations. These are also the objectives pursued by the Republic of Serbia therefore the Austria experience can contribute to the process of achieving European standards. The author analyzes the security strategy of Austria as a document of particular importance in terms of national security. This becomes particularly evident in the fact that the Republic of Serbia has a task of harmonizing the national security strategy with actual and estimated developments in the region and beyond. In addition, the national security of Austria will be viewed through the most important elements, such as national interests and goals as well as its relationship to the most important security challenges it faces. But to fully understand the strategic determinations of Austria it is necessary to consider relations with the most important subjects of international security, which will be specifically discussed in this paper.

Keywords: security strategy, security policy, national interests, neutrality

1. INTRODUCTION

What was once a mighty Austro-Hungarian Empire after the First World War, Austria has become a small republican state. History of Austria recorded and 1938 as the year of annexation by Nazi Germany. End of World War II for Austria is represented also the beginning of the occupation by the four great victorious powers. Such status will remain until 1955 by signing the State contracts and the establishment of a democratic Federal Republic, which consists of nine federal states. Recognition of the independence of Austria is also represented and ban unification with Germany. Constitutional provisions is determined by its demilitarization and international policy of neutrality. However, the collapse of the Soviet Union in 1991, neutral foreign policy was abandoned, and Austria is developing into a democratic, prosperous and economically strong country and a member of the European Union since 1995. Austria has twice changed the Constitution, the first time the changes were carried out due to EU accession, and the second time for adoption of the Lisbon treaty[1]. According to geographical origin, the Republic of Austria is a country in Central Europe, with an area of 83,870 sq km area and about 8.21 million inhabitants. The ethnic structure of the population are born and naturalized Austrians (91.1%), and about 1.5% of the inhabitants are members of indigenous ethnic minorities (Slovenes, Croats, Hungarians, Czechs, Slovaks, Roma). In Austria, lives and about 1.6% of Turks,
Germans 0.9% and 0.9% other. According to religious affiliation, 73.6% of Austrians are Roman Catholic, 4.7% Protestant, 4.2% Muslim, 3.5% other, while 14% of residents about not declare[2]. The head of state is the President of the Republic who is elected in general elections for a term of six years. In its competence, among other things, the appointment of the Chancellor, as well as members of the Government on the Chancellor's proposal. Leading foreign and domestic policy is the responsibility of the Federal Government. Federal States have their own parliaments - Provincial Assembly, who are elected provincial government. The legislative power at the level of the State performs the bicameral Federal Assembly. The elections for the 183 deputies of the National Council are close and are organized every four years, while 62 deputies of the Federal Assembly elected greater federal states, in proportion to the population. Based on the provisions of the Constitution, the armed forces at the strategic level of command Federal President of Austria, who is also the Supreme Commander of armed forces of Austria. President of the leadership of the armed forces is realized through the Minister of Defense[3]. The role of president is more formal character and refers primarily to its authority to, if necessary, makes a general mobilization, and mobilizing militiamen and reserve. Unlike the President, Federal Chancellor of the Austrian Government, through the National Security Council and Defense Minister, achieved practical management of the armed forces of Austria at the strategic level. In accordance with the Law on Defense, questions of organization, equipping, territorial arrangement and the second are the responsibility of the Government of Austria. The National Safety Council is a central advisory body of the Government of Austria for questions of foreign, security and defense policy. Convened at the request of the Federal Chancellery to discuss and make decisions on issues of special importance for the safety of Austria. Members of the National Security Council are: Federal Chancellor, who is also the President of the Council, Vice Chancellor, Ministers of Foreign Affairs, Defense, Interior, Justice and two representatives of each of the political parties represented in the Federal Parliament of Austria. In addition, a permanent advisory members of the National Security Council are: one representative from the Office of the President and the Conference of the federal states, Chief, Director General for Public Safety and one representative of the Federal Chancellor, Vice-Chancellor and Minister of Foreign Affairs and Minister of Defense responsible for issues The Council debated. In addition, constitutional provisions are defined and most important tasks of the armed forces and to:

- military defense of the country,
- protection of citizens and institutions,
- assistance in case of natural disasters or accidents in the country,
- contribution to the common security of Europe and
- visible and profiled contribution to international peace and security[4].

2. SHORT HISTORY OF NEUTRALITY THE REPUBLIC OF AUSTRIA

The end of the First World War and the collapse of the Austro-Hungarian monarchy, is also the beginning of the birth of the idea of joining permanently neutral Switzerland. However, considerations of neutrality broke the Anschluss, and the Second World War brought destruction and occupation of Austria into four occupation zones controlled by the victorious powers. End of the Second World War also marked the reawakening idea of permanent neutrality, as well as the beginning of intensive diplomatic activity to obtain
recognition for its proclamation. To this end it was decided to first obtain the consent of the Soviet Union, which was implemented in March 1955. A few months later, Austria, USA, UK, France and the Soviet Union signed a "government contract" which Austria gained independence and declared its permanent neutrality with the option to join the United Nations, provided that is permanently neutral state which guarantee specified force. Thus Austria became permanently neutral country to international legal acts recognized[5].

In addition, neutrality was declared "independent" in the Constitutional Law of neutrality, following the adoption of the Constitution. The Austrian government has not seen any incompatibility permanent neutral status with membership in the UN, as well as membership in the Council of Europe. Also, she did not have the opportunity to develop a negative component of its policy of neutrality, since the Constitution was prohibited possession of weapons of mass destruction and combat aircraft and missiles. After establishing the European Economic Community, Austria has expressed interest in improving cooperation, which resulted in a request to join. On the other hand, the Soviet Union pressured because joining would mean a violation of the neutrality of Austria and being put on the side of the "NATO military bloc, or a side that is hostile to the Soviet Union and other socialist countries." This has influenced the change of Austrian policy towards a powerful "controller" by pulling political moves, such as supporting the efforts of the USSR through recognizing, for example, the Palestinian Liberation Organization (PLO), voting for Cuba in the election of a non-permanent member of the UN Security Council, refusing to participate in a boycott Olympic Games in Moscow in 1980 and the other. Although militarily neutral Austria to participate in a number of peacekeeping missions under the auspices of the EU, UN, and the Partnership for Peace, and the civil war in the former Yugoslavia, particularly in Bosnia, has been influenced by that Austria began increasingly to orient in the direction of NATO, through Partnership for peace program and increasing the readiness and participation in peacekeeping, humanitarian and rescue operations, along with other western states[6]. Since 1995 he is a member of the PfP program. By joining the EU, ratification of the Treaty of Amsterdam in 1997, constitutional changes in 1998 and the decisions of the European Council in Cologne and Helsinki in 1999, Austria was officially identified and given the opportunity for full participation in the Common Foreign and Security Policy of Europe and the European Security and Defense policy. Access to these structures enabled to Austria, a neutral country, participate in peacekeeping, armed and unarmed EU operations.

3. CURRENT ASSESSMENT OF ENVIRONMENT OF AUSTRIA

The current security situation in Europe is determined by the new substantially modified challenges, risks and threats that are more complex, more interconnected and less predictable than what was the case in the second half of the last century. The assessment of the political and security situation as a basis for security strategy is based on the fact that "there is a possibility of endangering the security of Austria in the future. The reason for this is the numerous armed conflicts and increasingly prominent political destabilization of the security situation and the lack of prospects for a large part of the population in the European environment. " Such an assessment requires a quick response in the form of long-term adjustment of national security structures, in particular the development and adaptation of structures for crisis management in the country. In this regard, priority in development is optimizing the use of all available resources a comprehensive and proactive engagement of the security structures, with the ultimate goal of the implementation of
comprehensive measures of positive shaping the security environment, measures of prevention and timely reaction to threats. In addition, the goal of optimizing the system of national security and to ensure maximum efficiency of security subjects and accelerate decision-making process in case of crisis, why the need for a clear division of responsibilities and tasks between all security subjects in the country, including civic organizations and partners.

Table 1: Overview of budget allocations for the Republic of Austria defense system[7]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FOR DEFENCE</th>
<th>SHARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2,005 billion E</td>
<td>0.63% GDP</td>
</tr>
<tr>
<td>2014</td>
<td>2,019 billion E</td>
<td>0.63% GDP</td>
</tr>
<tr>
<td>2015</td>
<td>1,855 billion E</td>
<td>0.56% GDP</td>
</tr>
<tr>
<td>2016</td>
<td>2,268 billion E</td>
<td>0.63% GDP</td>
</tr>
<tr>
<td>2017 (planned)</td>
<td>2,318 billion E</td>
<td>0.62% GDP</td>
</tr>
</tbody>
</table>

In order to implement the tasks set, Austria in recent years has increase necessary budgetary funds earmarked defense system, although the average share of the budget of Ministry of Defense is 0.61% of GDP, which puts Austria at the bottom of the list of EU countries according to the percentage of the funds earmarked for defense in relation to GDP. Recorded an increase of 2,015 years as planned in 2017 and reflection engagement defense elements in the migrant crisis, which has not bypassed Austria At the same time, it should be noted that Austria has a specific organization of the ministries because the defense sector and sport make the Ministry of Defense and Sports. Although, according to the Strategy for Security possibility of a conventional attack on Austria unlikely, it does not diminish the importance of preserving national military resources to defend the country as a precondition for the protection of the sovereignty and integrity of the country. To this end, the focus of development of the armed forces is to build capacity for performance of a wide range of operations support operations to independent military operations. In addition, the assessment is clearly defined that the growing threat to national security are non-conventional forms of organized use of force by "state and non-state actors", such as terrorism and cyber attacks. Any cyber attacks represent a factor that may significantly jeopardize the functioning of vital infrastructure and lead to the destabilization of society and jeopardizing the most important functions of the state. Also, we can not rule and attempts to over Austria realized smuggling of dual-use goods, and material and technology for the production of weapons of mass destruction as a threat to the security of the country. Global level problems such as natural disasters, technical and environmental disasters are on the rise, but at a national level. For Austria the most relevant crisis and conflict regions are: South East and Eastern Europe, the Black Sea region, the Middle East, North and Sub-Saharan Africa. On the other hand the security situation in the neighboring countries of the EU, especially in the south and east of the EU, is very unstable and prone to political and social unrest. Based on the assessment of environmental strategy defines the challenges, risks and threats where the proceeds from the assumption that the conventional attack other countries less likely in the near future, but that the country and the EU as a whole more vulnerable to new challenges, risks and threats. It is not been classified compromising on the above criteria but are only listed and above all: international terrorism, proliferation of weapons of mass destruction, internal and regional conflicts and turmoil affecting Europe or can have global consequences, "a failed state", natural or artificial disaster, endangering the security of IT systems ("cyber attacks"),
threats of strategic infrastructure; transnational organized crime, drug trafficking, crime, corruption, illegal migration, lack of resources (energy, food, water), climate change, damage the environment and pandemics, as well as the consequences of the international financial and economic crisis on the security of the country. In addition the strategy is estimated to be endangering the security of the state in the future have a much more international character[8].

4. NATIONAL INTERESTS

Security Strategy of the Republic of Austria, the basic security interests are defined as:
- comprehensive protection of the population, securing the territorial integrity and sovereignty, protection of legal and democratic constitutional order and basic human rights,
  - improvement of well-being and protection of person and human values,
  - preservation of social peace Austria and promote the welfare and safety of living together,
  - strengthening democratic society and protection of extremist and fundamentalist tendencies and influences,
  - ensuring the availability of vital resources,
  - strengthening the resilience of public and private sector to natural and artificially induced accidents and disasters,
  - preservation of efficient national economy and preventive action against the crisis economy, through the provision of population vital resources and protection of the most important parts of the infrastructure,
  - environmental protection comprehensive protection and minimizing the negative effects of natural and technical disasters,
  - strengthening and building measures to provide humanitarian aid and assistance in the event of a disaster on a national and international level,
  - construction and expansion of civil and military capacities and structures in accordance with relevant international standards in order to meet political and security tasks,
  - strengthen the European area in terms of freedom, security and justice, as well as strengthening partnership with other countries in the field of security relevant environment EU
  - contribution to the security of free movement in the Schengen area,
  - overall improvement of stability of the environment of Austria, and preventing the escalation of conflicts,
  - the fight against international terrorism, organized crime and corruption,
  - combating illegal migration and the fight against human trafficking,
  - support international efforts in the early detection of crisis, conflict prevention, crisis management and post-crisis action
  - support measures for the protection of civilians in armed conflict, particularly women and children,
  - strengthen the capacity for action of international organizations,
  - regional and global disarmament and arms control, security sector reform, as well as preventing the proliferation of weapons of mass destruction,
  - contribution to development cooperation,
providing consular assistance to Austrian citizens abroad and improving wide security awareness of citizens of Austria[9].

5. AUSTRIAN SECURITY POLICY

Security Policy Austria considered at the national, international and EU level. At the national level, the focus is on close cooperation and joint action of all relevant political structures of the country, based on a joint strategy and the appropriate specific strategies, such as "Austrian cyber security strategy." The basis for the adoption of security-policy decisions at national and international level represents a comprehensive understanding of the security situation of all relevant actors. In addition, security policies at the national level should enable Austria to become one of the safest countries with the highest quality of life, why it is necessary to fulfill the following objectives:

- effective fight against crime,
- crime prevention and partnership state apparatus and civil society, being particularly important stronger citizen involvement in the prevention and fight against crime,
- provision of asylum is a matter of humanity and traditional obligations of Austria,
- the fight against illegal migration
- control migration in accordance with the interests of Austria,
- improving and encouraging the integration of population and
- use and protection of data is a very important issue in a time very rapid development of technology and the complete digitization of society " 10].

In addition, one of the priorities of the internal security forces represents a help in the event of natural and technical disasters, with particular attention paid to the joint operation of all state actors and armed forces represent the main instrument of action in this area. At the international level, the objectives of security policy are to support the countries of the Western Balkans and South Eastern Europe in the process of safety standards of the EU, cooperation with eastern and southern neighbors countries outside the EU and target-oriented cooperation with the United States and the Russian Federation, as well as strategic partners of the EU in the field of security. Within the UN, Austria is firmly committed to the continuation of an active role and personal contribution in the field of human rights, protection of civilians in armed conflict, as well as on the issue of military participation in the framework of the operations of preserving and building peace. With a total of 192 members of the armed forces of Austria is currently engaged in four UN missions: UNIFIL (Lebanon) - 180, UNTSO (Middle East) - 4 UNIFICYP (Cyprus) - 4 and Western Sahara (MINURSO) - 5[11].

6. AUSTRIAN RELATIONSHIP BETWEEN THE MOST IMPORTANT INTERNATIONAL SUBJECTS

New Security Strategy, Austria has ruled out the possibility of joining NATO, and turned the cooperation with NATO within the Partnership for Peace ( PfP) and through membership in Euro-Atlantic Cooperation Council (EAPC). In addition, Austria is identified for participation in NATO operations, which exclude the member 5, and for that assessment to comply with external and security policy interests of the country. One of the recommendations in relation to the external aspects of security policy in the
Austrian security strategy requires active participation in NATO crisis management and intensification of cooperation in PfP to preserve interoperability, in which particularly emphasizes the importance of participation in MNOP. Accordingly, in 2016. Over 500 of the AF AUT average were involved in the following missions: NATO KFOR (K) - 500, AUTCON / DEU ORFBn (K) and -5 Resolute Support Mission - RSM (Afghanistan) -10 [12]. A significant segment of the security policy of Austria presents its active role and cooperation in the framework of the OSCE, chaired in 2017 and is very active when it comes to participation in the „Special supervisory mission of the OSCE“ in Ukraine. The focus of Austrian security policy within the EU is its contribution to the implementation and further development of EU policy in the field of law and internal issues, as well as in the area of Common Foreign and Security Policy (CFSP). Special importance for Austria represents institutional cooperation within the framework of the existing European legal and police institutions, border control, building a comprehensive model of information exchange, the fight against illegal migration, as well as a joint operation and help in the fight against terrorism and disasters. In the context of the CFSP, Austria seeks to actively operate in accordance with its own capacities. In this respect, Austria is actively involved in providing power for the battle group of the EU, as well as in other specified projects Security and Defense Policy[13]. the case of the two countries, Germany represents the most important partner in the field of defense and security, where it is only one segment of the comprehensive cooperation between the two countries, based on the foundations of national and cultural closeness. In this regard, the focus of bilateral military cooperation between Austria and Germany is still in the implementation of joint training and exercises, as well as on joint participation in multinational operations and battle group as well as in the field of military education and training. By beginning the war in Yugoslavia, Austria is strongly supported by the German approach to the conflict, actively advocating for the right to self-determination of Croatian and Slovenian. During the further development of the crisis, let it fly and radar NATO aircraft (AWACS) in order to implement actions to establish no-fly zone over Bosnia on the basis of Resolution 781 UN Security Council [14].

7. REPUBLIC OF SERBIA – STRATEGIC VIEW

Unlike Austria, the Republic of Serbia declared its neutrality in an unusual way through a resolution primarily dedicated to the status of Kosovo and Metohija within Serbia. However, to date, determination of the Republic of Serbia has not been clearly presented in any official national document. The exception is the current Strategic Defense Review, in which after ten years neutrality is mentioned as the principle of the defense policy. If a Strategic Defense Review is an example which, in accordance with its purpose, affirms military neutrality, it is not clearly said in the National Security Strategy and Defense Strategy from 2009. Similar to Republic Austria, Republic of Serbia has also developed and institutionalized cooperation with NATO since the Accession to Partnership for Peace program in 2006 in the form of participation in the Integrity Program, in the Planning and Review Process, the existence of the NATO-Serbia Defense Reform Group, the opening of a military mission in the Mission of the Republic Serbia at NATO Secretariat in 2010 and establishing a NATO military liaison office in Belgrade. By adopting the Individual Partnership Action Plan (IPAP) and the parliamentary decision on ratifying the agreement on cooperation in the field of logistics and regulating the status of NATO forces on its territory, Serbia in 2016 rounded up the current cooperation with NATO. Today, the current security situation in the Western
Balkans is stable, but very sensitive. Poor heritage and armed conflicts in the former Yugoslavia have left deep wounds of interstate relations in the Western Balkans region. The improvement of mutual relations and the overall state of security has been influenced by the European Union through the stabilization and association process, which has also created the conditions for overcoming the accumulated ballast from the past. However, the very complex internal problems of certain countries in the Western Balkans region, which have the potential to worsen relations, and even armed conflicts, must not be ignored. Solutions accepted by certain countries as imposed by the international community, through the Dayton, Kumanovo and Ohrid agreements have triggered the emergence of a number of political and security issues, which in turn can negatively affect the security of the entire region. All neighboring countries are in line with the proclaimed national interests and values, at the stage of integration into the international and collective security organization. Five of the eight countries with which Serbia borders are NATO members, while the two are on the path of membership. Four of them Hungary, Romania, Bulgaria and Croatia are members of the EU, none of which has become a member of the Union and has not previously become a member of the North Atlantic Treaty Organization. The situation in Bosnia and Herzegovina, bearing in mind the opposing views of the two entities, is confusing, also part of the territory of the Republic of Serbia is under international civil and military administration. One of the issues that arise is whether Serbia can be an exception and become a member of the European Union without having previously become a member of the North Atlantic Alliance. The above dilemma can be formulated in the form of participation in "this security defense concept," or is it "one of the possible directions of wider security integration as a kind of path that would not necessarily require the accession of our country to formal security alliances such as NATO". The interests of modern Serbia in the field of national security are the protection of sovereignty, independence, territory, population, natural resources, basic principles and values, which are the basis for further development, increase of well-being and contribution to harmonious relations with other countries. When considering the military neutrality of the Republic of Serbia, it is necessary to assess whether any membership in any military alliance (NATO, CSTO, etc.) can lead to the realization of national interests in the time ahead. It is indisputable that NATO is probably the most important security actor in the region and Europe, but at the moment membership is out of question. However, the current situation has changed significantly, which means that the world is no longer as unipolar as in the 1990s. International relations, as well as the practice of changing the period of cooperation and conflict between NATO, particularly United States, and, above all, the Russian Federation and China, are still in international focus. On the other hand, active cooperation with all political and security actors is a necessity for a small country like Serbia. In circumstances where the maneuvering space is significantly narrowed, the dilemma arises whether the Republic of Serbia is forced to military neutrality and whether it can get the most out of it, while at the same time it has the least damage. The basic precondition is that Serbia actively engages in the international recognition of its own neutrality, thereby securing a position that will become a priority on the international level.

8. CONCLUSION

In accordance with the proclaimed national interests and uncertain environment of Austria developed a system of national security. Austria has a long tradition of neutrality, so that its participation is limited to the Partnership for Peace Program and, as the Member States, the
Common Security and Defense Policy. Austria had a special approach to building its position in the framework of European security, and this is done through their representatives in the EU institutions, especially in the period to build the European Security and Defense Policy. Sam defense system organized by the standards accepted at the EU Member States and NATO. Special attention in the Security Strategy Austria paid to the participation of the armed forces in UN missions, the EU and NATO, so that Austria has members of its armed forces in areas that are consistent with the interests of the European Union proclaimed. Participation in peacekeeping missions Austria is seen as a very important to build its foreign policy position, although it is neutral, so that in this regard should be to develop the position of Serbia in all potential arrangements for participation in missions and operations. Finally note that the operative part of Winston Churchill, it does not matter whether a country is neutral, it is on whose side of neutral, does not apply and for Austria, which is its proclaimed policy of unequivocally committed to EU, but this does not impede the intensive economic cooperation with the Russian Federation and other countries. At the moment, the Republic of Serbia is on way of adoption a new National Security and Defense Strategy. These documents will in detail clarify the position of neutrality of the state, as well as these documents will give answers to the issues of strategic orientation that have so far been the subject of various discussions. The fact is that the strategic goal of the Republic of Serbia is to join the European Union, to contribute to the strengthening of peace in the world, but also to preserve the national interests of all citizens. Strengthening regional security, as well as cooperation with all countries of the world, is vital to the stability and security of Serbia, which will be clearly expressed in the new strategic documents. The Republic of Serbia and the Republic of Austria have a lot of similarities in their national interests and values which opens the opportunity for more significant cooperation between the two countries.

LITERATURE
Abstract: Preventive action, as the weakest point of the system of protection and rescue of Republic of Serbia, has shown many weaknesses during the last five years. In the next period, if there is a will to properly manage the risks at all levels of government, it must be improved by initiating procedures to remedy the observed deficiencies. At all levels of the civil defense system (defense subjects), the lack of a preventive way of planning, reacting, handling and managing with many risks was the weakest point in emergencies, which was particularly felt and felt during the May floods in 2014 and later in the year. The paper analyzes the extraordinary situations that were announced in 2014, on the part or the whole territory of the Republic of Serbia, with a special emphasis on preventive operation of the system operators in the function of timely risk management.

Key words: prevention, risk, emergency situations.

1. INTRODUCTION

So far, the problem of prevention and preventive action has been largely viewed from the point of "compensation for damages when a natural disaster occurs", which is completely wrong, and in the following period it has to be abandoned and turned to preventive action, because "one euro invested in preventive returns ten times", as can be seen on the examples of EU countries. The Republic of Serbia builds a unique protection and rescue system throughout the territory and undertakes preventive measures to reduce risk and operational measures when emergencies occur. The main force in the fight against emergencies is represented by civil defense entities, in particular units of local self-government with their human and material potentials.

2. NORMATIVE-LEGAL ORGANIZATION of PREVENTIVE OPERATION

The area of preventive action is regulated by many laws and by-laws, of which the next ones should certainly be singled out.

1. Law about emergency situations [1] (hereinafter: the Law) defines 11 basic tasks of the protection and rescue system (hereinafter: P&R), especially protection, as a set of preventive measures aimed at strengthening the resilience of the community, elimination of possible causes of threats, reduction of the impact of natural disasters, prevention of other accidents, and in case of them, the reduction of their consequences. The P&R system of the Republic of Serbia is part of the national security system and an integrated form of management
and organization of the P&R system entities in the implementation of preventive and operational measures and the performance of tasks of P&R people and goods from the consequences of natural disasters and other disasters, including measures to recover from these consequences. Defined tasks in the P&R system are performed by the subjects of the civil defense system: 1) state administration bodies, autonomous provinces and local self-government units; 2) companies, other legal entities and entrepreneurs; 3) citizens, groups of citizens, associations, professional and other organizations. In the implementation of the P&R, civil defense subjects implement the prescribed principles of the P&R and their work is based on cooperation, solidarity, timely and coherent operation. Of great importance is the implementation and implementation of the principles of preventive protection, which ensure priority prevention measures in accordance with their competencies. In exercising their rights and duties in the issues of the P&R, local self-government units monitor their dangers through their bodies, inform the population about the dangers and take other preventive measures to reduce the risk of natural disasters and other disasters. The P&R Plan in emergency situations plans preventive and operational measures to prevent and mitigate the consequences of natural disasters, technical and technological accidents - crashes and disasters, as well as the strengths and resources of the subjects of the P&R system, their organized and coordinated engagement and operation in emergency situations for the purpose of the P&R of the people, material and cultural goods and providing basic living conditions. The law specifies in particular the measures of civil protection (hereinafter: CP) that are implemented by the subjects of the P&R system: 1) preventive measures; 2) protection measures in case of immediate danger from natural disasters and other accidents; 3) protection measures when natural disasters and other disasters occur; 4) measures to mitigate and eliminate immediate consequences from natural disasters and other disasters. Data on potential accident hazards, preventive safety measures and procedures and measures in the event of a company or other legal entity must be available to the public. In order to acquire the necessary knowledge in the field of personal and collective protection, citizens are trained and trained for preventive protection and rescue. The planning and programming of the P&R system, through long-term plans, includes the development of preventive measures and activities of importance for the P&R.

2. The National Strategy for Protection and Rescue in Emergencies [2] defines that the principle of preventive protection is one of the basic principles on which the integrated system of the P&R of the Republic of Serbia is based. The government is responsible for all aspects of the management of emergency situations. On its behalf, responsibility for the planning and implementation of preventive measures, readiness, responses to the emergency situations and their consequences was transferred to the joint activity of the competent state administration bodies, autonomous provinces and local self-government units. The responsibilities of each of the listed entities are defined by the Law (Articles 9-15).

3. The Law about Water [3] defines, through the General Plan for the Protection of Floods, the special measures that must be taken preventively and during the period of large water intake (external and internal). In order to prevent and
eliminate the harmful effects of erosion and torrents, preventive measures are carried out, built and maintained water bodies for protection against erosion and torrential rains and perform protective works, such as: 1) prohibited actions: devastation, shrinkage and clean logging; Surface deflection; Construction of facilities without proper planning and project documentation; Exploitation of river deposits from the bottom or slopes; Construction of facilities that could endanger the stability of the land (waterfalls, dams, canals, fishponds and the like); Other actions that promote erosion and the creation of torrents; 2) use of agricultural and other land in accordance with the requirements of anti-erosion landscaping.

4. The Rulebook on the manner of preparation and the content of the accident plan [5] in the section on Protection and Rescue from Accidents elaborates the measures and tasks for implementation, and in particular the preventive measures: assessment of the resulting accident situation and decision making on the implementation of the P&R; Organization of information, organization of management; Organization of assistance, first medical assistance and health care (holders - health institutions, organizational structure, capacities, routes of transportation of injured persons, material security, etc.); Organization of the removal and care of the endangered population (carriers, specialized teams and tasks, categories and number of endangered places, capacity of facilities, material security, direction of movement, organization and mode of transportation etc.) ...

3. EMERGENCY SITUATIONS IN REPUBLIC OF SERBIA

The extent to which the significance of preventive measures and the taking of preventive measures in the subjects of the protection and rescue system were given, can best be seen on the examples of emergencies in the period from 2012 to 2014. Years declared as unfavorable natural factors-causes.

3.1. Emergency situation in Republic of Serbia in 2014 because of flood

On May 15th, the government of Serbia declared an emergency situation throughout the territory of Serbia in order to be able to use resources from all over the country and sent to vulnerable areas, and a request for assistance to the international community was also sent. Most of the MI was involved in the flood defense process, as well as the forces of the Ministry of Defense and the Army of Serbia. The consequences of the flood wave from May 14 to 20 are catastrophic: on categorized roads 30 were destroyed and 50 bridges damaged; On municipal and un-sorted roads, about 200 bridges were destroyed and damaged; Due to landslides or landslides, about 20 categorized and hundreds of local roads have been damaged, and the torrents took about 10 kilometers of railway in Tamnava in the Ub area; about 200 houses were destroyed, hundreds of houses damaged, while several thousand houses were not usable for housing; over 50 (most elementary schools) and 300 business buildings have been damaged and disabled; The flood wave has reduced the reliability of large power transmission systems, especially vital facilities for transmission from Thermal Power Plant Kolubara, and TENT in Obrenovac; In the territory of Serbia, a total of 31,879 citizens from the threatened areas have been evacuated; evacuated are accommodated in 136 reception centers, while one
part is located in family and friends. The total damage suffered by Serbia in the May floods is over 1.7 billion Euros. This amount is up to 15 percent higher than the estimated value of destroyed goods in the 24 municipalities that suffered most in floods. Serbia has about 12,000 overflow streams, affecting certain areas in varying degrees, arising as a result of soil erosion under the influence of natural and anthropogenic factors. Successful defense against torrential floods is possible only by undertaking preventive work and measures. Two basic groups of works are applied: biological and biotechnical works – to afforest, forest protection zone..., and technical works in the watercourse to prevent large water spills - regulation of watercourses and barriers. The massive floods that occurred in May 2014 in Serbia are due to the climatic-meteorological phenomenon. This climatic-meteorological phenomenon could not be prevented, but its destructive effect would be considerably less if preventive work was undertaken in the past twenty years. Serbia faces a constant risk of torrential floods and, if they want to prevent harmful consequences, it is necessary: to build new flood protection systems with the regular maintenance of the existing ones; Change legal regulations - especially in the part of permanent funding; To strengthen the defense against torrential floods from the competent ministry to local governments and companies; draw up documents (Map of erosion, Map of currents of Serbia and Map of conducted counter-measures); To establish new priorities in the strategic documents of water management and to introduce early warning systems for floodwaters. Since the beginning of the nineties in 20th century, the financing of water management, and consequently of counter-measures, has been drastically reduced in order to reach its minimum in 2013. The allocations for counter-measures in Serbia in 2006 amounted to 1.351 million Euros, and in 2010, 0.462 million Euros. The financial resources allocated in the past years were not enough even for the regular maintenance of the constructed facilities, without which they lose their functionality. The necessary annual financing of works to prevent floods in Serbia is about 30 million Euros. In addition to reduced funding, the inadequate defense against torrential floods is also the poor institutional organization of water management. The water management companies in charge of land protection from erosion and the regulation of torrent banks have not been transformed into state-owned enterprises in the process of privatization, which is the only correct solution because they are jobs of state interest. In the flood defense plan, many institutions and businesses are hierarchically charged with defending, but they do not have an employed expert, nor do they need the machinery to react adequately in the case of water floods. Also, there is no horizontal coordination of public water supply companies in Serbia, and cooperation with relevant institutions (Republic Hydro-meteorological Institute) and the Emergency Situations Department is unsatisfactory. Numerous questions had been asked during the flood: “Why none of the authorities and competent authorities reacted to the forecast and warning of the Hydro-meteorological Institute of Serbia, a red warning dated May 12, in which the waters of Obrenovac announced water levels across the border of an emergency flood defense?”; “Why are the director of “Srbijavoda”, the commander of the Obrenovac Municipal Staff and the Belgrade City Staff not replaced, when defects were found in the defense of Obrenovac?”; “Who is responsible for the fact that “Nikola Tesla” thermal power plant does not have up-to-date flood protection plans and why TENT and surface mine facilities are not insured against damage caused by the floods?”; “Why the Serbian government did not pass the bylaws necessary for Implementation of the Law on Emergency Situations, adopted in 2010, when the Article 6 of the Law on the adoption of bylaws stipulates a deadline of six months?”
3.2. Emergency situations in some municipalities of the Republic of Serbia in 2014

1. Užice, 06.01.2014. - emergency situation due to inadequate drinking water - the ban on the use of drinking water and food preparation from December 26, 2013. In order to establish regular supply and prevent the occurrence of serious consequences for the water supply system it is necessary to take urgent measures on the rehabilitation of the existing city water supply in the part of the plant and providing alternative sources of supply, as well as on the rehabilitation of Lake Vrutci. The Serbian government seeks to establish the responsibility of all institutions and inspections that are responsible for depositing algae in Lake Vrutci. Water from the city water supply can be safely used as technical water for bathing, tooth washing and other sanitary needs.

2. AP Vojvodina- 30.01.-05.02. 2014 - hurricane basket, snow and snow deposits: swept roads, 1000 people blocked on roads; Interruption of school work; Column of about 300 trucks for four days stood on the highway Subotica-Novi Sad, due to the large snow deposits at the town of Žeđnik; The winter service only began to clear the road for the third day, when the Red Cross arrived; At the border crossing Horgoš, there were a large number of trucks waiting to enter Serbia; Railway traffic on the Pančevo - Vršac line in the interruption due to remarkable rubbish and snow deposits that had been bundled by two diesel locomotives between Banatsko Novo Selo and Vladimirivac. Snow layers in some places on this section are four, five, and six meters high. According to the Chief of the emergency situations Sector, "We planned for such situations in December 2012, when due to the unprotected part of the highway, the columns of vehicles were lured. Then the responsibility was for those who did not cleanse the snow, but this time we struggled with the hurricane wind that inflicted rubbish on the road". Otherwise, on January 29th of 2014, the head of the Sector for Emergency Situations of the Ministry of the Interior of Serbia, Predrag Marić, said that they were prepared for winter conditions, possible snow tights and the unblocking of cars on the roads. "People from snowfall can be blocked for a long period of time, and I think that we have prepared well for this scenario. When I say that, I mean not only the emergency situations Sector, but also the defense and traffic ministries with which we cooperate."

3. Anti-Civilian Protection and Floods in April 18-21- Kraljevo, Kuršumlija, Zaječar, Žitorada ... Emergency situations in 11 municipalities - the Prime Minister expressed his dissatisfaction with the repetition of the situation on vulnerable areas from the 2011 flood, because now again completely the same areas are again threatened, which, as he said, "speaks about the non-discrimination of local self-government on the condition of the protection of watercourses on its territory". By the beginning of the city defense season, on April 15th, Serbia should have around 8,000 anti-tank missiles, which is three times less than the optimal annual requirement of 25,000 missiles. For the normal functioning of the anti-theft system in Serbia, it takes between seven and eight million Euros a year, which is not a big amount, having in mind that only last year's damage from the city is estimated at around 50 million Euros. The money is provided for the procurement of about 3,000 anti-ship missiles, the price of which is about 130 Euros per piece. The October 2013 season ended with stocks that amount to less than three anti-space missiles. The optimal number of missiles per anti-theft site is 12 pieces. Director of the Public Company "Srbijavode" stated that for total flood protection in Serbia it is necessary to allocate 11 billion dinars for 175 endangered locations. He said that the first-rank watercourse in the state's responsibility, while second-tier watercourses are
under the jurisdiction of local governments, that prevention is the key to protecting the Poles, because when the river flows out, "you can only save the most endangered parts of the territory." "Srbijavode" has only 20-30% of the necessary funds, in order to build and maintain the necessary embankments and coasts.

4. Slides - every spring in Serbia is the same story. Snow melts, heavy rain falls, and after the torrents, landslides are activated. The damage is measured by tens of billions of dinars each year. And the state constantly deals with the consequences, not the causes. Serbia can repair all landslides, which threaten the safety of citizens and infrastructure, with the money to pay for the consequences in five years, estimates from the CIP Traffic Institute. We need to create a database first in the beginning, do the researches and finally determine exactly how many landslides in Serbia. Now they are just looking at estimates that there are about 35,000 or about 30 percent of our country is vulnerable to landslides. The Director General of CIP states: "The most dangerous geological processes in our areas are earthquakes, landslides, slopes and torrents. We cannot avoid them, but there is prevention. First of all, in the urban planning of cities, the word of the profession needs to be respected and buildings built on only the geologically top-quality terrain."

5. An emergency situation due to mosquitoes in Kovin – July 2014 - the action of treating mosquitoes from the air, from the soil and parricides, began in May in Sremska Mitrovica and Šabac due to the prevalent epidemiological situation, the disinsectization was necessary in a shorter period of time In order to protect the health of the population against infectious diseases. The emergency situations staff informed all relevant authorities that it was necessary to implement systematic pestisation measures due to the presence of a large number of rodents, leptospirosis transmitters, especially as flooded areas with water withdrawal, ideal sites for survival of the disease causative factor, leptospire bacteria. Unfortunately, there are municipalities in Vojvodina that did not plan funds for the treatment of mosquitoes, although the situation is catastrophic for them, "mosquitoes fly in swarms that shield the view". Such a high number of mosquitoes has not been recorded for many years. A large number of citizens of the Zablják municipality rightly posed the question: “Will something be done against the general mosquito breed”, which, as if it were never any more. At the time (April 29th), the municipality launched a mosquito prevention service, but the public procurement procedure failed and had to be restarted, while mosquitoes did not wait and do their job. Everything was repeated on May 29th, but it had to wait for the deadlines, in order to finally select a mosquito control company. A similar situation existed in Zrenjanin, which is especially specific due to the large number of water surfaces - Tisa, Begej, Tamiš, Čanĉansko jezero, Okanj bara, Peskare, Bagljaški kanal, Mala and Velika Rusanda, Begej Chanel, which makes the entire territory suitable for mosquitoes. The whole country fought mosquitoes, but it was the worst in Kovin - the emergency situations Headquarters decided to declare a state of emergency because of the mosquito and potential epidemic outbreaks of the western Nile. According to the local government officials, “if someone enjoys such varied weather conditions, they are certainly mosquitoes. They are currently in paradise, while Serbia cannot possibly get rid of them because they became immune to various poisons.”

6. Ćuprija - July 2014 - Because of the fire alarm, which for 10 days was shaking at the old garbage dump, the Emergency Headquarters in Ćuprija declared an emergency situation in the villages of Supska, Vlaška, Krušar, Isakovo, Ivankovac, Paljane and Dobričevo. The fire at the former landfill was localized and the spread of fire was prevented, but the danger to the surrounding villages was smoke. The headquarters said:
“We have preliminary results on the quantity and composition of smoke at the landfill, and we have issued an order to do the analysis of the air in the surrounding villages. The fire at the landfill is specific and it can be extinguished only by sand and earth, which is a bit too easy.”

7. Užice - July 2014 - due to drinking water problems, an emergency situation was introduced in Užice. Algae flourish again at the reservoir in Vrutci, which is why it is checked whether the water from Vrutak penetrated the Užice water system. During that time, the tanks were again on the streets of that city with drinking and cooking water, as the sanitary inspection banned the use of water from the Užice water supply system due to the occurrence of algae and the increased number of nematodes, parasitic worms.

8. Vršac – 31st of July 2014 - During the night in Vršac, the amount of rain that was recorded for 30 days during the average rainy month decreased, numerous households, closed part of roads were endangered. Due to the abundant precipitation (160 liters per square meter), many parts of the city are under water. The emergency situations headquarters urgently engaged the mechanization to purify the channels from the material that caused the flow. Also, pumping teams were sent to the General Hospital and the Health Center, as the water penetrated the basement and the pharmacy.

9. Unstable weather and heavy precipitation in Serbia caused material damage and flooding of residential buildings. An emergency situation proclaimed in Požarevac, Medveđa, Topola, Sokobanja and Boljevac on August 1st. During the previous two days, over 200 anti-aircraft missiles were fired, 24 people were evacuated, while six were saved. After the May floods, Požarevac was again hit by disasters, during which the city had a lot of problems.

10. Kosjerić - August 2014 - due to the damage caused by the storm in the villages of Seća Reka and Godečevo, an emergency situation was declared. Water penetrated into eight houses, the fields were submerged, and torrential streams and rivers took dozens of unclassified roads. The mechanism is sent to the ground and works on clearing the roads, in order to normalize the traffic communication for 140 households in the flooded area. In addition to remediation, the priority in removing the consequences is the cleaning of the riverbed.

11. Extraordinary flood situation in the municipalities of Kladovo, Negotin and Majdanpek – 15th September 2014 - In the areas of Negotin, Kladovo and Majdanpek municipalities, extraordinary situations have been declared due to abundant precipitation, outflows of the Boljevin and Podvrška rivers, landslides, and in the mountainous regions And to the arena. There is great damage to the villagers in these municipalities. In the territory of Kladovo, due to the occurrence of torrential streams, 15 rural local communities are endangered. A bridge in the village of Milutinovac was demolished, and the road Kladovo-Donji Milanovac is in disruption. The settlement of Tekija is cut off from Kladovo. The village of Podvrška with twenty inhabitants is inaccessible due to the landslide. Without electricity are the local community Podvrška, Petrovo selo, Donji ključ, Vajuga, Milutinovac, Korbovo, Rtkovo, Velika Vrbica. Fixed telephony, and partly the mobile network are interrupted.

Kladovo was from 15th September cut off from the world, because the heavy rainfall caused torrential rains that destroyed two bridges that led from Negotin to this city from the slopes of Miroč mountain. Due to the demolition of the bridges, but also the fact that Teke collapsed on the other side, the inhabitants of this place were also isolated from the world. Members of the Ministry of Internal Affairs of Serbia evacuated about 370 people from areas affected by floods in the municipality of Kladovo. About 300 people were evacuated from the local community of Tekija. From the village of Podvrška 65 people
were evacuated, and from the place Blizina two people. In the areas of endangered floods in the Bor district, members of the emergency situations, Ministry of Interior with vehicles and boats, members of the Gendarmerie and the police force from Belgrade were hired, and the Mountain Rescue Service is included. The Podvrška destroyed the bridge on the road Kladovo-Negotin due to abundant precipitation. The public company “Elektroprivreda Srbije” announced that the unprecedented weather that hit the municipalities of Kladovo and Negotin caused great damage to the hydroelectric power stations “Derdap 1” and “Derdap 2”, whose employees are making huge efforts in the fight against torrents and a large amount of water. In the “Derdap 2” HPP, two units are out of operation because water and sludge from the surrounding hills partly penetrated into that part of the power plant. The consequences of the storm in Tekija are very serious. Rapid stream took away bridges, brought sludge and took of trees. There was no water, electricity or mobile signal in the settlement; ninety percent of the residential buildings were filled with mud and trees that had caused torrential rains. On the hill above Tekija there is still a very slippery slope that creates additional problems especially for locals who did not want to evacuate.

4. CONCLUSION

The importance of prevention is much written, but very little takes action. The best example is for events in the Republic of Serbia, especially in 2014, when numerous and varied emergency situations came across us. Some systems could respond in a timely manner that there was a desire (and will) of the subjects of the defense, especially of which the units of local self-government should be emphasized. Notwithstanding the Constitutional obligation, the obligations imposed by the Law on Local Self-Government, and in particular the Emergency Situation Act, local governments have not taken all measures, especially preventive measures, to protect their citizens, material and cultural assets and the environment as a whole. In particular, the weaknesses identified in the National Strategy of the 2011 P&R should be emphasized: 1) Institutional-organizational: lack of conditions for the consistent application of regulations; inadequate organization and implementation of preventive measures; unavailability of specialized cadasters; lack of comprehensive risk maps; uneven distribution of capacity of reaction services on the territory of the Republic of Serbia; unset system 112; 2) materially-technical: unsatisfactory level of traffic and other infrastructure; outdated, unreliable equipment, vehicles and vehicles for reaction in emergency situations; inadequate financing of the maintenance of the P&R system; 3) cooperation, coordination and availability of information: insufficient coordination between the subjects of the P&R system in emergency situations; insufficient cooperation between scientific and research institutions and direct researchers; 4) human resources and education: inadequate professional qualifications and technological discipline of available human resources; lack of specialized staff; insufficient training of professional staff; underdeveloped culture of prevention.

It should be especially emphasized that the adoption of subordinate legislation in the area of planning and the development of vulnerability assessment and P&R plans should be emphasized. We emphasize only four of the 32 documents that should had been adopted by mid of June in 2010: the P&R National Strategy with a delay of 17 months; decree on the composition and method of work of emergency staffs - a delay of 7
months; guidance on the methodology for making a vulnerability assessment - the risks and plans of the P&R in emergency situations - a delay of 27 months; decree on the content and method of drafting the P&R plans in emergency situations with a delay of 7 months. As a direct consequence of this situation, Plans and Assessments at the level of local self-government are still not being donated, and therefore preventive measures were not undertaken. The ultimate consequence of such a situation is well known - flooded - ruined houses; evacuated population; destroyed environment; devastated cultural and material goods; damages irreparable. Since the eighties of the 20th century in Serbia, there is no knowledge of emergency situations in the education system and the way in which human lives can be protected. This is not about “low awareness of the citizens”, but about its complete absence when it comes to the P&R in emergency situations. It is about failure of the Statutory provisions of Article 119, first of all, the Ministry of Education, where the Minister's obligation was to prescribe a plan and a program for training youth in primary and secondary education, which was not done even after 7 years from the adoption of the Law on emergency situations. The aforementioned emergency situations in the whole / part of the territory of the Republic of Serbia in 2014 showed that there should be better preparation of the subject of the P&R system for similar situations. Also, it is necessary that the competent local self-government services monitor and maintain the infrastructure in a regular state, through regular maintenance. In the statement of the Chief of Sector for emergency situations “in eastern Serbia, what happened was our greatest fear, which is torrential floods. I am concerned about the frequency of floods in Serbia, such a frequency is worrying and therefore in the years ahead, we need to invest more in the prevention system. There are projects with the World Bank on strengthening the embankments, we just need to see what the dynamics of the financing will be. We need to pay more attention to preventive action.” “Dams and embankments have to being created. When you have a flood wave like in May, you have to repair the embankments to bring them to a functional state.” “I cannot specify how long it will take... because we are afraid of new precipitation, although not large, but there (in the eastern part of Serbia) and a smaller rain can make a problem”, in this area “there is some kind of normalization of life in progress”, which includes the supply of food and water to the vulnerable population. “The Red Cross manages and coordinates the distribution of food and water, and other help... it’s hard to get to people, it’s possible to get somewhere only by boats and it does not go at the speed we want, but I think it will eventually reach everyone”.

LITERATURE

REFLECTION OF THE MODERN SECURITY CHALLENGES, RISKS AND THREATS IN THE LOCAL COMMUNITY

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Abstract: Looking at security, today as well as throughout history, it is evident that it has always been in the centre of interest. That interest is especially significant today due to present security challenges, risks and threats to security. Frequency of security challenges, risks and threats causes a big problem to national security and the security of local community. Regarding that local community is a place where citizens can seek their interests and satisfy their existence needs in the most direct way it is a place where due to security challenges, risks and threats those interests, needs and rights, cannot be secured or can be deprived. This thesis points out the significance of the local community in the context of security, especially in the context of reflection of the modern security challenges, risks and threats in the local community. This thesis also points out the specificities of the local community as well as its administrative bodies and subjects that contribute to security at this level of citizen organization.

Key words: security, modern security challenges, risks and threats, local community.

1. INTRODUCTION

Without a doubt, security has always been of great interest to people. People, in other words, every living creature is by its nature preoccupied with the thought how to survive, how to develop and finally how and in what manner to ensure emergence of its kind. This kind of interest lies in a strong instinct of human beings for self-preservation which dates far into the past, from the very beginning of living world. The perception of security in relation to the first appearance of human society has changed through time and spread to the wider social community, country, so today, the issue of security is wider than before, and it is related to international, global, in other words planetary level. Awareness of security has changed by changing of perception, and especially today, when the whole world society is faced with numerous security challenges, risks and threats to security. Considering that those security challenges, risks and threats due to openness of borders, science and technology development, globalization, and geopolitical changes do not only endanger values within national borders, but endanger people and values more widely than that, today is rightly discussed security as a global problem. Today’s security challenges, risks and threats are not only related to the defense of national borders and territory of a country, but they are today more expressed in the field of Transnational Organized Crime, terrorism, migration, corruption, but also in the field of human rights, democracy, poverty, ecology, globalization…
Violations of human rights and civil liberties are more frequent today, and very noticeable especially in the local community, where people most directly meet their basic living needs and implement their rights and interests. From the aspect of security, local community has a very important role, because the consequences of damaging influence and their reflections are very visible at this level of organization of the people, and therefore the local community must be seen as a significant part in the total geographic area. In this context, without taking into account the design and concept of security concerning the individual in the local community, the higher level of security would have no sense.

That is the reason which imposes not only need for the timely and synchronized action of all security subjects in the area of the local community in countering security challenges, risks and threats, but above all there is a need for their objective judgment. In assessing the reflection of challenges, risks and threats, the characteristics of the local community, professional competence of the authorities and civil services are of particular significance, which contribute to the function of security in the area through their activities, and they also make contribution to the local self-government legislation. Such relation and respect for all the necessary parameters creates healthy basis for organized strategy for preservation and improvement of security in the local community.

2. MODERN SECURITY CHALLENGES, RISKS AND THREATS

Security of the modern man is more and more endangered by modern security challenges, risks and threats that are products of globalization, poverty, religious and national extremism, migrations... Security problems present today, are not anywhere near to those that happened in the past, because nowadays problems are mainly product of the globalization process and they are related to the whole of mankind. Due to the fact that current challenges, risks and threats are both with local and global characteristics, it can be rightly said that as such they represent the very challenge of our survival. Such complex security issues that are the product of increasingly emerging challenges, risks and threats require a multidisciplinary approach and a mutual response. Just as with a multitude of security phenomena, it is as the same with modern security challenges, risks and threats, that there is still no single attitude regarding their determination and definition. In order to point out clearer and more complete their determination, emergence and harmful consequences that they produce, it is necessarily to take a look at the very concept of security.

The security issue has been only connected to the state and state affairs for many years ago, and its main bearers were the army and state. At that time, there was a traditional understanding of security in which people were threatened only if the threats came from outside the country. According to the Tatalovic and Bilandzic “traditional comprehension of security was based on observation of the military power of the states and general system of these states; and traditional definitions, that were put into the space between force and peace, are based on three profound assumptions: belief that the state is responsible for safety, security policy was directed to preservation of existing condition, military threats demanded efficient military defence which was primary interest”[17, page 3]. After the expiry of a certain time and from the viewpoint of security, it could be concluded that these views were very narrow and that their understanding of security did not include complete picture of social security phenomena.
The same authors consider that “the most important difference between traditional security views and the modern ones is that security is no longer identifiable only with the states, that is, when mentioning the security phenomenon, there are many more areas that deal with military issues and military defence, as it was case in the past. Their concept is not only focused on the state, but includes individuals and the world community”[17, page 4]. At defining security concept, as same as at defining the security challenges, risks and threats, there is still no unique definition about: what is security. According to Dimitrijevic “definition of security is multidimensional and non-universal”. Everyone understands or discerns its meaning, but hardly anyone can give concise facts and explain it. It is indisputable, in the most general sense that “security exists, and when exists it manifests without being disturbed (accomplishes, develops and improves, it can be used) is that what is valuable and significant (for us), and when such condition is obvious, predictable and controlled, that implies (our) capability to protect it from unwanted impact”[4, page 38]. However, for an easier understanding of the work itself, it is important to observe several definitions of security. According to Mijalkovic and Keserovic “security is need, process-activity and function, then condition, organization and, finally absence of threatening manifestations and fear (security and safety), and in its centre are certain values and interests”[12, page 35]. Some different definition of security gives Miletic, according to whom “security can be defined as legally arranged and established (by secured social relations), maintained, and advanced condition in the state that enables effective protection of the state and the citizens that live in it from all (external and internal) illegal acts and actions that endanger constitutional order, sovereignty, independence and territorial wholeness of the state, work of the state authorities, doing the economic and social activity and implementation of freedom, rights and duties of the man and citizen”[14, page 13].

As it was already mentioned, there is no universal definition for security challenges, risks and threats. In order to make efficient definition of those concepts it is necessary to point out their meaning in advance. According to Vukicevic for the term “izazov” we use term “challenge” which in English language means: provocation, provoke, challenging; objection, making an objection; resistance, opposition; exception (of witness, judge); calling; call, invite; charge (verdict), make an objection to a verdict”[18, page 79]. According to Maksimovic “the challenge is a term of the highest level of generality and symbolizes phenomenon or process that is possible and probable, universal, multidimensional, and at the beginning, value-neutral. Initial neutrality may in the time get a negative or positive tendency. If negative tendency prevails, the challenge turns into risk and gradually increases the probability of a harmful impact on a particular security facility. A positive tendency implies determination of the goal that we need to achieve in order to improve the security situation of the object endangered by the negative side of the challenges”[11, page 132].

Unlike Maksimovic, Mijalkovic and Keserovic, some state that “security challenges are phenomena which harmfulness and certainty of appearance are real, but on the mentioned scale of phenomena they are the least probable. These are natural phenomena, social relations and technical-technological processes which existence (by itself) is destructive within acceptable limits because does not endanger the seriously vital values, but it could produce (contribute or cause) in the future some phenomena that would endanger security with considerably serious and difficult consequences. This is about the threatening phenomena with the highest level of generality and with the lowest intensity of direct destructiveness”[12, page 111]. When we talk about security risks, it is necessary to point out that term “risk” is multidimensional, so its definitions are alike.
According to Kalanj” for the philosophers the term-risk is one of the fundamental components of man’s existence, whereas for the social sciences it is an inevitable dimension of human activity and social dynamics”[8, page 129]. We could say that the risk” is probability of happening of some incident which causes a damage”{10, page 22]

However, according to Becko “risk is modern approach of foreseeing and controlling the future consequences of man’s actions and diverse, unexpected consequences of extreme modernization”[1, page 3]. Kovacevic is also talking about risks, according towm “risk is apparently simple term, but it is not so, because it reveals some of the most fundamental characteristics of the world that we live in today. Today, risks are gained global mark and therefore are very dangerous, and because they have possibility to destroy life on the Earth”[9, page 323]. However, in contrast to the challenges and risk, threat is a term which is seldom identified with the term danger. No matter what kind of identification is used “danger mostly includes health, environmental, technological and catastrophic risks, and term threat is related to the security risks that endanger national and international security”[7, page 48]. Further, according to Lisici “threat represents combination of intention and capability of enemy to take actions that could be harmful for property and population”, according to him threat is defined as “probability of enemy’s attack in a certain period of time”[10, page 16, 15].

3. LOCAL COMMUNITY

People, individuals are driven by specific needs and interests, not only today, but in the past they also connected into certain social groups. Those communities ensured them security and survival in a particular area, that we now know as local communities. According to Pejanovic and Sadikovic “it is assumed that the first known local communities appeared in Ancient Greece when traditional tribal, patriarchal and ancestral organizations were transformed into territorial units, and where they declared every resident as member of particular territorial community. Throughout developing of human civilization, as far back from Greek polity, local communities have been considerably changed.

Those changes were restricted by development of human societies, demographic changes, new socio-economic relations, by changing way of life and living conditions[16, page 13]. Historical development of local communities was influenced with the process of urbanization, and also with technological development. Modern local community is necessary, needed, realistic and dynamic category, that must be viewed as such. According to the same authors “local community can be characterized as a “living space”. This space, aside from physical component also occurs as a social space fullfilled with interpersonal relationships, actions and institutions”[16, page 14]. In the past, the original human communities were nothing else but tribal associations, where the basic connecting element was affiliation of individuals to the particular social group. According to the authors mentioned before “criterion of that affiliation to particular social group was some objective or subjective quality, which marked the individual as a member of that group. Only settlement of people at the certain area form community that people live in, which today stands for local community”[16, page 13]. In the modern sociological theory”local community is defined as specific territorial wholeness in which citizens satisfy the biggest part of their needs through their own and from the mutual resources. The local community is a form of association of people- that by gathering around common problems, interests, needs and values-join into various social
interactions, developing awareness of belonging to the community.[16, page 14]. We could say that local community appears in a way that people live and support themselves in some restricted area, and that functions in order to satisfy common needs, that emerged because of division of that area, through significant forms of social actions. From mentioned above, we can conclude that there exists two outer extent of local community, and those are:
- People and space (area)
- Needs and actions for their fulfilment

Without a doubt, one of the constitutional elements of the local community is people that with their settlement of certain territory form colony as social community where they live, work and reside from which we can conclude that “local community is a living space in which its members satisfy their existential needs”[15, page 15]. In the space of living, in other words in the local community, modern security challenges, risks and threats and reflection of their consequences are very noticeable. More often, today’s organized crime, migrations, terrorist activities, challenges in terms of culture, religion and the like reflect the local level. The fact is that some reflect less, and some more. All those consequences produced by today’s security challenges reflect to a certain extent the local community. However, in order to have better view on reflexion of security challenges, risks and threats of the security in local community, it is necessary and of great importance to have in mind peculiarity of the local community, such as geographical, cultural, industrial, traffic, demographic… Those peculiarities of local community often cause security challenges, risks and threats in the future. According to Milic “local social community is global form of social life which encompasses all social forms and all forms of social activity in a particular geographical area. Within its framework various social institutions and organizations (economic, political, educational, religious, entertaining etc.) develop and operate… In order to determine boarders of local communities it is necessary to know frames in which the most of direct social relations take a place in some narrow area, and also to know feelings of the population about affiliation to the certain social community. The village, smaller city, some districts of major cities with distinct economic and social structure are the most characteristic concrete forms of local communities”[13, page 52]. The safe local community is, and especially today, predominant interest of its citizens, which is also precondition for satisfying their needs, implementation of their rights and interests. In that sense, which is also natural, local community develops and improves its actions by bringing certain documents related to security. According to Bjelos, Brozovic and Djordjevic: “in order to make safe community, among other things, must:
- develop partnerships with community stakeholders, where partnership not only that sublimates the level of cooperation, but essentially influences the will of community stakeholders in order to build within their domain, the security of the environment, the relation of unreserved trust and responsibility in improving security and safety;
- have preventive approach to the community problems, by providing necessary information for creating proactive mechanisms and instruments with aiming at prevention and reduction;
- have problem-oriented work, which means to accomplish the synthesis of interactive approach of more active participants in identifying and solving specific security issues;
- establish communicative process through active exchange of information among active participants, especially in the major cities, where such subjects are often estranged and unknown to each other;
- respect peculiarity of the local community and possibility that different local communities have specific needs;
- develop high level of tolerance among subjects of the community, which represents process that creates conditions for developing and improving the trust among those subjects;
- have responsibility of all community subjects for security conditions in the community, which is reflected in a more conscientious approach to the events and phenomena, as well as obligation to participate in actions related to the creating and improving of a better living environment for the citizens [2, page 7].

4. SECURITY SUBJECTS IN THE LOCAL COMMUNITY

The citizens mainly expect a lot from security subjects in protection and establishment of convenient security condition in the local community, and they expect the most from the police. According to Gacesa police is “specially organized civil service whose priority task is to protect public order, in other words, to ensure public and civil security and implement other interior affairs within the scope of law” [6, page 28]. That view of the police is expected. However, at creating complete security environment at local level is also entrusted with other security subjects, whose job description is not directly related to security, but it is very important tool for implementation of security function. Speaking of other security subjects, mainly referring to supplementary security subjects, that operate and exist within local community. These are security subjects that are neither organized, intended nor equipped to be professionally engaged in security, but with performance of their duties they contribute to the realization of security function. Their primary role is obliging, educational and advisory in order to help citizens for implementation of their rights. So according to Mijalkovic and Keserovic “more successful prevention of various security threats of modern country presupposes and requires immediate and responsible commitment on these questions and other social agents, such as: administrative organs and local community, public services, companies and other organizations, non-governmental organizations, educational and scientific institutions, religious communities, citizens, social organizations, means of mass-media communication and etc. [12, page 328]. In order to have security of local community at the highest level, it is necessary and essential that police and other security subjects mutually, synchronized and systematic operate and act, and respect all important phenomena which are present at local, national and global security level. Therefore, as Butorac and Solomun state “today’s level of development of security does not strictly mean the synonym for the military power, but engagement of other security aspects through various social, economic, cultural, health, ecological and other sectors. They also state “that process of creating security in the specific area depends on economic, social, political and individual characteristic of that area, scientific and technological standards, geopolitical and geostrategic opportunities, and acting in the public interest” [3, page 132]. Overall, consideration of these specificities at local level, aims at preventive action in time, so that those challenges, risks and threats do not cross the higher level of threat which brings not only perturbation of public, but serious security consequences for normal functioning of citizens in such local community. Simply, according to Erkic “citizens expect initiative and responsibility from local authorities in solving the key problems of the community whereas holders of local authorities are the closest level of authorities to the citizens, therefore they are in the best position for direct work with local groups aiming at developing effective programmes which are based on needs and
capacities of community. Development of such programmes, based on the needs and features of community, is recognized as the most successful way of solving problems. In so doing, we must not forget national politics and strategies that provide frame and direction of action. But action at local level is crucial for planning and implementation of activities which are directed to building and maintaining safer and stronger community.” [5, page 451]. Active involvement of the citizens as contribution to the security, also plays important role. According to the same author “it is important to remember that, regardless of level of activity and concern of the local authorities and the local police, citizens know best what problems they are facing daily. This is the reason why it is important, on the one hand, to motivate citizens to participate in processes of decision procedure, and on the other hand, that citizens activate by themselves on that area”[5, page 451]. Nowadays trends in prevention of crime, in order to get greater security, refer to an idea of mutual responsibility and involvement of local self-government in determination of priorities in the field of security in local community.

5. CONCLUSION

We could say for today's security challenges, risks and threats that are more frequent and more complex than the previous ones. Those changes are result of the rapid development of science and technology, environmental pollution, creation of greater differences among rich and poor, globalization... As the product of such complexity, there are completely new forms and ways of their demonstration on the stage. Taking into account that man tends to be as safe as possible, which is normal thing, he today observes security as the right that is inseparable from other rights, right to liberty, life, work... That level of feasibility of man's security is most evident in the local community, place where he directly meets his needs and implements his rights and interests. The consequence of modern security challenges that are presented today, at both national and international level also reflect the local level. That reflection is consequence and way of its manifestation is not the same everywhere and usually depends on the very characteristics, i.e. peculiarity of every local community that can be geographical, demographic, cultural, ethical, ethnical, social, communication and some other nature. Security strategy at local level requires to take into account those local peculiarities, but also to actively engage the local self-government with its own institutional and human capacities besides police. There are many ways in which local self-government can be helpful for the local police and other subjects, from making local regulations to the professionalization of its officials that directly or indirectly influence security. It is completely clear that modern security challenges, risks and threats must be seriously understood and we must treat them with special care, because the consequences that they bear with themselves reflects not only to security in general, but they lead to the personal discomfort and anxiety of their citizens, being a threat to their guaranteed constitutional rights and liberties. The consequences of reflection of security challenges, risks and threats are not only evident at local level of organizing people, but these consequences are reflected on other higher levels, which refers to conclusion of their mutual connection, as well as seriousness of their monitoring and confrontation as it is today, it also will be in the time that comes.

LITERATURE


Abstract: In modern society it’s frequent for recognition of the need of strengthening the devices and mechanism of maintenance the tasks of civil protection in a goal of protecting and saving humans, material and culture goods and environment from danger caused by natural disasters and other accidents. Although the roots of civil protection are found in humanitarian activities and giving help in order to prevent that population be the subject of attack during the war; the complexity of safety architecture gives accent on readiness and capability of the state to make preventive and operative measures for protection and rescue in every moment. Despite the advance and development of all the areas of human operations which contribution is seen in improvement the quality of lives of mankind in whole; at the same time all the dangers are deepen and get more complicated, so they can cause the proclaiming of state of emergency and so test the possibility of urgent reaction. Primary responsibility of the state in decreasing the vulnerability of society on safety challenges, risks and threats is recognized in strong institutional areas capable to implement international and national legislative.

Key words: civil protection, system of protection and rescue, defense system, strengths of protection and rescue.

1. INTRODUCTION

In the achieved level of security of a particular state, the culture of prevention takes a significant role, which concerns every individual. The awareness of security issues and the obligation to protect vital values and interests greatly contributes to the reduction of the danger caused primarily by the human factor, and it also affects the prearrangement and adequate response at the moment of the disasters that have already emerged. Every action in the function of society's survival must be firmly established and institutionalized. Sustainable and applicable normative-legal regulation represents a clear direction for the construction, design and performance of institutions, which contributes to the improvement of the state of security. People always think of security when it is jeopardized, but also of the system of protection and rescue, that is, the defence system within which civil protection exists. Mentioned only in the context of the consequences of war devastation, civil protection has been neglected for a long period of time, until natural disasters, technical and technological accidents and terrorist acts have not proven that they can be equally devastating, as a result of material devastation and the creation of fear in the population. The state has a central role and responsibility for the safety of citizens and property, and therefore its institutions expand and improve their activities in
relation to the assigned security tasks. New aspects of security assign protection and rescue tasks not only to state institutions, but also to businesses, entrepreneurs, associations, organizations and alliances. In the entire chain of work coordination of the state and non-state actors, it is important to recognize the place and role in the implementation of tasks and measures of civil protection both during the preparatory phases, as well as in the event of a state of emergency. Partial engagement of forces and resources, ie, mismatch and unsuccessful realization of civil protection, will otherwise occur.

Being the main vehicle for implementing the tasks of the protection and rescue mission, civil protection is incorporated into the civil defence system through strategic documents. In the Republic of Serbia in 2009, civil protection is no longer under the jurisdiction of the Ministry of Defense and falls under the authority of the Ministry of Interior, that is, Emergency management sector. Also, civil protection returned to the jurisdiction of local self-governments through a legal framework, and business associations, organizations, voluntary citizen associations gain the importance so they can be involved in protection and rescue. The Serbian Armed Forces continue to be an indispensable element of protection and rescue, and their capabilities in recent years in the field of civil protection on the territory of the Republic of Serbia are tested for emergency situations.

2. CIVIL PROTECTION IN EMERGENCY SITUATIONS

Since the global war tensions left the international scene, it has also affected the shift of civil protection from the armed forces into civil structures. Destructive action of natural forces can produce severe destruction and cause a sense of insecurity in humans; while the vulnerability of critical infrastructure of a state due to technical and technological accidents or terrorism hinders or interrupts the normal functioning of all social spheres for a certain period of time. These circumstances almost always produce at least an emergency situation, that is, when the risks and threats or consequences of disasters, emergencies and other dangers to the population, the environment and material goods of such scale and intensity that it is not possible to prevent or eliminate their occurrence or consequences through regular operation of the competent authorities and services, which is why it is necessary to use special measures, strengths and means with a reinforced regime for their reduction and elimination [13]. In relation to the original relation to the protection of the civil population from the consequences of war destruction and due to the constant threat to the safety of society from natural disasters, technical and technological accidents or disasters of different intensity, the circumstances surrounding the application of civil protection are expanded and its role in the protection and rescue system is confirmed. The protection and rescue system is part of the national security system and the integrated form of management and organization of the subjects of the protection and rescue system in the implementation of preventive and operational measures and the execution of the tasks of protecting and rescuing people and goods from the consequences of natural disasters and other disasters, including measures for recovering from these consequences [13]. In order to create a well-founded framework in the national legislation for the implementation of tasks and measures of civil protection, a number of by-laws have been adopted, supplementing the Law on Emergency Situations. Due to the mutual solidarity of the states in providing assistance and cooperation and in order to overcome problems together, a number of international treaties have been signed. By implementing the law by the envisaged subjects of the
protection and rescue system, an adequate inter-sectoral environment for the functioning of civil protection is established. Emergency situations require a very dynamic and proactive, interdependent and complex management process, which includes the activities and procedures of classical management: assessment, decision-making, planning, organization, ordering and execution, control and analysis, which must, to the necessary extent, be implemented at all levels of the managing and emergency management bodies [9]. Civil Defense Program ideal focus is based on five prerequisites: relevant legal aspects of Civil Defense program, availability of supporting infrastructure, budgeting, coordination mechanisms among ministries and agencies, and the purpose of the State Defense program [6]. It unites in a single system all activities in the field of preparation, prevention and rehabilitation important for the prevention of accidents, the right reaction and reduction and elimination of their consequences [3]. Civil protection is a humanitarian, socially integrative and, above all, an eminent state function, non-transferable and inalienable from the executive power of the Republic of Serbia [3]. The leading institution in this field is the Ministry of Interior Emergency Department. The range of tasks of this ministry, in the area of protection and rescue concerning civil protection includes: organizing training and checking operational readiness of headquarters and emergency services as well as specialized civil protection units, in accordance with training programs and plans (provides expert assistance and instructions for the work of the authorities for the protection and rescue of autonomous provinces, local self-government units, companies and other legal entities); and education, organization and equipment of specialized civil protection units for the territory of the Republic of Serbia and administrative districts, organization and procurement, servicing, maintenance and storage of equipment for the needs of protection and rescue. However, the first level of disaster risk management should be at the local community level in order to ensure the safety of people in the context of such approach [5]. Units of local self-government are obliged on their territory to: make a decision on the organization and functioning of civil protection and ensure its implementation in accordance with a unique system of protection and rescue; to plan and determine sources of funding for the development of civil protection and implement civil protection measures and tasks; to acquire and maintain means for whistleblowing in the framework of the public alert system in the Republic of Serbia, participate in the development of a study of the coverage of the public alert system on its territory; organize, develop and maintain personal and collective protection and to form, organize and equip civil defense units for general purposes. Companies and other legal entities perform the following activities in the area of civil protection:
- plan and provide funds for organizing, equipping and training the civil protection units they form;
- organize and prepare personal, mutual and collective protection; and
- carry out measures and tasks of civil protection of their employees, material and other goods [13]. Citizens are trained for personal, reciprocal and collective protection, they implement the prescribed and ordered measures and carry out civil protection tasks [13]. They are also obliged to accept the schedule assigned to them when deploying them to civil protection bodies and units (specialized and general purposes), and to respond to the invitation of the competent civil protection body. In the National Strategy for Protection and Rescue, the Ministry of Defense and the Serbian Armed Forces are recognized as representing
the significant resources, primarily because of the possibility of engaging logistical support, aircraft, engineering units and CBRN defence units [7]. One of its three missions which supports civil authorities in countering threats to security, the Serbian Armed Forces implements through the help of civilian authorities in opposing internal threats to security, terrorism, separatism and organized crime, and through assistance to civilian authorities in the event of natural disasters and technical and technological and other disasters [8]. The Chief of the Serbian Armed Forces General Staff, or the head of the competent command of the Serbian Armed Forces, based on the special authority of the President of the Republic, for the purpose of protecting and saving people, material and cultural goods from natural disasters, technical and technological accidents and disasters, the consequence of terrorism and other major accidents, may order measures for the conduct of preparedness and use of parts of the Serbian Armed Forces, in order to eliminate the harmful consequences that may result from non-military threats to security [1]. Normative-legal acts do not fully determine the representative of the Serbian Armed Forces who manages operations during emergencies and communicates with the competent Emergency Situations Section. The introduction of an organizational unit or the improvement of the existing one with the aim of establishing a crisis management institute will improve the strict military hierarchy, which, with the security and defence role of the Serbian Armed Forces, will have an exceptional effect [11]. Emergency Situation Headquarters, civil protection units, firefighting and rescue units, the police, the Serbian Armed Forces and others whose regular activity is protection and rescue, as well as companies and other legal entities, Red Cross of Serbia, Mountain rescue service of Serbia and associations that are trained for protection and rescue, have the obligation to implement civil protection measures. Starting from the long-proven, but also contested, opinion that the civil protection is the policy of protecting people, it is clear that every society must make the maximum effort to create an efficient system with the highest aim of protecting and saving people, as well as their material and cultural assets, and all that, therefore, must be subordinate to the creation of preconditions that enable its functioning [3]. Civil protection in emergencies becomes an integration process, showing the importance and inevitability of joint action and cooperation not only for the Emergency Situations Sector and the Serbian Armed Forces, but for all state bodies, companies and other legal entities, associations, organizations and societies, whose human and material capacities are trained and equipped for inclusion in the process of implementation of civil protection measures.

3. CIVIL PROTECTION IN EMERGENCY

At any time during the year, at least one state has declared a state of emergency or emergency situation on its territory. When defining the conceptual determinations of the emergency situation and the state of emergency, it is evident that the emergency situation is a milder form of state of emergency. Precisely speaking, an emergency situation is a situation that arises when regular activities can not be prevented and the consequences caused by dangers are eliminated, and when the envisaged measures are not sufficient, it can with certainty turn into a state of emergency [2]. Countries declare a state of emergency depending on the degree of security hazards, as well as the consequences for national values and interests. In the Republic of Serbia, a state of emergency is a state of public danger in which the survival of the state or citizens is endangered, as a result of military or non-military challenges, risks and threats to security [12]. Humanity faces traditional but also modified causes of danger, where the
core of problem-solving lies in the fact of reducing harmful consequences, which are always alarming. The state of emergency is not only a transitional period from peacetime to wartime; it is more and more becoming an indispensable period for establishing normal functioning of the society after the occurrence of accidents and disasters. Observing the civil protection in the context of an alternative timeframe for removing harmful consequences, we recognize the extreme complexity of the system in which the cooperative communication and the work of different structures lead to the ultimate goal. In the Republic of Serbia, the Law on Defense defines civil protection as organized, prepared and implemented as a system of protection and rescue of people, animals, material and cultural heritage from natural disasters, technical and technological accidents and disasters, consequences of terrorism, war and other major accidents, in accordance with applicable regulations, principles and requirements of the Additional Protocol to the Geneva Conventions and other rules of international humanitarian law, as well as ratified international treaties. However, during the state of emergency, civil protection is organized and functions as part of the defense system, which represents a unique, normative, structurally and functionally organized entity within a system of national security, whose goal is the protection of the sovereignty, independence, territorial integrity and security of the Republic of Serbia of all forms external and internal threats to peace, emergency and war [12]. In order to protect and save people, material goods and the environment in an emergency, Ministries of the Republic of Serbia, large technical-technological systems, special legal entities, companies, other legal entities and entrepreneurs of importance for defence, organize the implementation of measures and tasks of civil protection. In order to implement these activities, all defense system entities are prepared on the basis of their defense plans, within which the plan of functioning of civil protection is of crucial importance because it identifies organization, forces, means, measures and procedures of units, headquarters and other civil protection bodies and companies, institutions, organizations and services equipped for protection and rescue in the immediate implementation of measures for the protection and rescue of people, material and cultural goods and in removing the consequences of war and other hazards. Also, in the area of civil protection, the local self-government units are responsible for ensuring the immediate satisfaction of the needs of citizens in the state of emergency through public companies, business associations, other legal entities and entrepreneurs within their jurisdiction [14]. Citizens have the right and the duty to execute military, labor and material obligations on the basis of the civil protection schedule and in accordance with the laws, decisions of the competent authorities and defence plans. During the state of emergency, citizen participation in civil protection includes:
- reserve civil protection force;
- execution of work obligation in the subjects of defence, that is, state bodies, companies, other legal entities and entrepreneurs in activities of special importance for defence and rescue, in order to perform urgent works for the needs of civil protection;
- execution of material obligation, respectfully, the transfer to temporary use with compensation of movable and immovable items at their disposal, which are designated as objects of special purpose for the needs of civil protection.
By recognizing all the structures of society as necessary in protecting the population in the state of emergency, the complexity of civil protection is emphasized, as well as the permanent need for its construction and improvement.
4. CIVIL PROTECTION IN WAR

The history of mankind is inevitably marked by wars, proving over and over again that states must count on the direct and indirect consequences of this kind of danger. Always present on the international scene, wars are at the same time a traditional and modern threat to civilizations and human rights. Built on the importance of overcoming the horror of armed conflicts, civil protection reminds us of the need for regulation at a time when security challenges, risks and threats are more than ever before, transnational. With Protocol Additional to the Geneva Conventions of 12 August 1949 relating to the Protection of Victims of International Armed Conflicts (Protocol I), civil protection becomes normatively and legally grounded. For the purpose of this Protocol: „civil protection“ means the performance of some or all of the undermentioned humanitarian tasks (warning; evacuation; management of shelters; management of blackout measures; rescue; medical services, including first aid, and religious assistance; fire-fighting; detection and marking of danger areas; decontamination and similar protective measures; provision of emergency accommodation and supplies; emergency assistance in the restoration and maintenance of order in distressed areas; emergency repair of indispensable public utilities; emergency disposal of the dead; assistance in the preservation of objects essential for survival; complementary activities necessary to carry out any of the tasks mentioned above, including, but not limited to, planning and organization) intended to protect the civilian population against the dangers, and to help it to recover from the immediate effects, of hostilities or disasters and also to provide the conditions necessary for its survival [4]. The States Parties to the Protocol undertake to implement the said activities through established institutions or other units exclusively dedicated to civil protection. In establishing its foundation primarily in international law, the implementation of civil protection in the war must be determined through the legislation of each state individually. In the Republic of Serbia, the national legislation identifies the functioning of civil protection in the state of emergency and war. The sovereignty, independence, territorial integrity and security or vital defence interests jeopardized by the war are primarily secured through the defence of the state. Civil defence is a part of the defence system, which includes the legislative and executive authority of the Republic of Serbia, the Serbian Armed Forces and other entities that are important for the defence. Civil defence missions are: providing presumptions for the functioning of the defence system, protection and rescue and participation in international protection and rescue operations [8]. In addition to highlighting the normative-legal determinations of the organization and functioning of civil protection within the defence system, it is important to emphasize the necessity of regulating the institutional framework for the management and coordination of the joint work of the protection and rescue forces in war. The number of security challenges, risks and threats that are isolated is in decline. In the context of the development of the dangers of the 21st century, it is necessary to monitor the increased awareness of people about protecting their own safety, as well as the safety of others.

5. CONCLUSION

The interdependence of the protection and rescue system and defence systems is observed through the joint implementation of tasks and measures of civil protection in the way of establishing normal existential conditions of the population of the territory
affected by an emergency situation or a state of emergency. The role of state bodies, local self-government units, companies and other legal entities, as well as citizens, needs to be more visible; their existence is not manifested only in critical situations, but also through the conduct of training and exercises, because each type of proactive action is in preparation for performing specific activities in the given conditions. Civil protection is necessary for all conditions, but it is necessary, through normative-legal regulation, to define the coordination and joint operation of the subjects of the emergency protection and rescue system, respectfully, the subjects of the defence system in the state of emergency and warfare. The most common causes of the declaration of a emergency situations in the Republic of Serbia are fires and natural disasters, that is, floods, landslides and snow deposits. National legislation on non-military security challenges, risks and threats, such as terrorism, equally recognizes the emergency situation and a state of emergency. The degree and intensity of the manifestation of a particular accident or disaster are conditional to the seriousness of the competent authorities in the protection of the state and citizens. The most striking example for this is France, a country declared a state of emergency as a result of a terrorist act carried out in Paris on 13 November 2015. After almost two years, the state of emergency in this country remains in effect. It is necessary to regulate the institutional framework of civil protection in the Republic of Serbia, in the sense of a more precise determination of the hierarchy of leadership and emergency management, ie. state of emergency, coordination of the joint action of all state and non-state entities, easier communication and more efficient information exchange. In the recent emergency situations on the territory of the Republic of Serbia, it was crucial to engage the Serbian Armed Forces in protection and rescue. Nevertheless, the development of capacity and technical equipment becomes imperative in the implementation of civil protection measures. In this context, it is important to carry out the reform of the Army in the future, in order to be closely involved in the implementation of civil protection measures, to regulate the authority that manages it during the third mission and to improve the capacities, since civil protection must follow the development of technologies.

By pointing to the institutional framework of civil protection, the emphasis is on the responsibility and obligation of different structures in situations, ranging from peacetime emergency to emergency and wartime. Responsible, coherent and comprehensive approach to the establishment and implementation of the civil protection concept will contribute to increasing readiness execution of the tasks of protecting and rescuing all social structures.

LITERATURE


[10] Uputstvo o Metodologiji za izradu procene ugroženosti od elementarnih nepogoda i drugih nesreća i planova zaštite i spasavanja u vanrednim situacijama, *Službeni glasnik RS* broj 18 od 07.03.2017. godine;


[12] Zakon o odbrani Republike Srbije, *Službeni glasnik RS* broj 10 od 29.01.2015;


Abstract: Establishment of a comprehensive municipal solid waste management system at the state level is a complex task, requiring an extensive analysis of possible solutions. When implementing planning procedures, it is necessary to use sophisticated system analysis methods. The use of material flow and substance flow analysis has been shown to be a functional method for analyzing waste streams in a complex system. The paper provides a brief overview of the use of these methods in the planning process of an integrated municipal waste management system at the state level.

Keywords: planning, municipal solid waste management system, material flow analysis

1. INTRODUCTION

The main role of a waste management plan is to define which is the combination of waste management strategies and method needed to collect and manage the waste in such a way to ensure a given set of targets is reached [1]. Objectives have to be sustainable and realistic, consistent with the environmental policies and regulations and monitored to verify the progressive achievement of the given targets. To get the aim, the setting up and quantification of indicators can allow the measurement of efficiency of a waste management system.

Design a proper waste management strategy has the consequence in the increase, in amount and in quality, the secondary resources obtained from a municipal waste. Waste management strategy planning is a complex task involving many disciplines, processes and technologies that compose the infrastructural network of the waste management system and allows to design different scenarios whose sustainability can be evaluated only by carrying out the waste management system itself, within existing legal, social and environmental guidelines that protect the public health and the environment [2].

Today in EU Member States waste management system have reached different levels of development. A screening of waste management system performances member states shows that especially high developed countries like Austria, Netherland, Denmark, and Germany have achieved high standards [3]. The question arises how to assess and improve current waste management systems. Various assessments methods [4] like cost-benefit-analysis, environmental impact assessment [5], multicriteria-decision-making [6], life cycle assessment and life cycle costing are available to point out strength and weakness of a waste management system, and to identify strategies for future development [7]. Material flow analysis (MFA) has become an increasingly applied
method providing a system-oriented view of interlinked processes and flows to support strategic and priority-oriented decisions and to design management measures. MFA have a long history in various fields [8]. Following objectives of sustainable waste management must be reached:

1. minimisation of consumption of raw materials and energy without yielding a real overall environmental advantage,
2. recovery of materials,
3. recovery of energy since energy recovery from waste allows decreasing consumption of fossil fuels and overall emissions from all energy conversion systems [9] [10],

The experience of other EU countries with a developed municipal waste management system requires the establishment of a complete system or an integrated system. Very important part of the integrated municipal waste management system is separate waste collection system, in which mostly five factions are collected from citizens. These waste fractions are: paper and cardboard, glass, light packaging waste (waste plastics and metals), biowaste and residual waste. First three fraction is directed in sorting and recycling system of separately collected waste fractions, where secondary materials are produced. The separate collected biowaste goes in the plants equipped with anaerobic digestion (AD) reactors with pretreatment and subsequent digestate composting. The main products from this production plants are biogas and compost. Residual waste is processed in the mechanical - biological treatment (MBT) plants. The main output flow from the process of mechanical-biological treatment is solid recovered fuel (SRF) and refuse-derived fuel (RDF). Waste materials from all these processing processes going to the landfill.

Waste Management Plan of the Republic of Croatia for the period 2016-2022. is foreseen that until 2022. that 60% of municipal waste will be collect separately as a fractions in the form of paper and cardboard, light packaging waste and glass, and the 40% of biowaste from organic content of municipal waste. Also it is planned in 2022. year to deploy in ladfills less than 25% of waste. Taking into account the above mentioned targets it can be concluded that the goals defined in the Waste Management Plan of the Republic of Croatia are very ambitious. Such results would translate the Republic of Croatia over a period of only five years from a group of countries with underdeveloped into a group of countries with a developed municipal waste management system. Such an undertaking requires the implementation of complex organizational solutions with the construction of technically sophisticated infrastructure facilities.

2. USE OF THE MATERIAL FLOW ANALYSIS (MFA) METHOD IN MUNICIPAL WASTE MANAGEMENT SYSTEM ANALYSIS

The goal of material flow analysis (MFA) is to establish a mass balance for a system of study [12]. The sum of all inputs into the system must equal all outputs plus changes in stock. The mass balance principle applies on the level of goods as well as substances (elements or chemical compounds). It must be observed for every process and for the total system. Depending on the focus of a study, material flow analysis (MFA) can be carried out as a static or dynamic mass balance approach. To evaluate the changes over time within a system, dynamic models provide information about changes in stocks and flows.
Usage of the material flow analysis allows the assessment of the amount of materials sent to recycling, to landfilling to mechanical-biological treatment and to waste-to-energy. System simulation results highlight that the sorting of residual waste can further increase the secondary materials amount. Maximisation of waste diversion from landfill can be achieved with the utilisation of energy recovery to treat the low-grade waste with a low production of hazardous ash.

Preliminary simulations of the operation of a complete or integrated municipal waste management system were carried out with the aim of quantifying waste streams in the system. For the preliminary simulation of the complete municipal waste management system in the Republic of Croatia, the material flows analysis (MFA) was used. Material flow analysis is an analytical method of quantifying material or substances flows in a defined system. The material flow analysis is an important tool for studying bio-physical aspects of human activity at various spatial and time levels. It is considered as the fundamental method of industrial ecology or anthropogenic, urban, social and industrial metabolism. This method is used to study materials, substances or streams of products in different industrial sectors or within different ecosystems. It represents a significant research tool in the study of the circular economy.

A model of a future integrated municipal waste management system in the Republic of Croatia is defined, consisting of the following components:

a) the boundary of the system

The spatial system boundary covers the territory of the Republic of Croatia, while the time limit represents 2020 as the account year.

b) Processes

As a process, all the technological and infrastructural facilities that make up the integrated municipal waste management system are taken.

c) flows

Internal flows are distinct (they link processes within the system) and streams that cross the system boundary. Such flows are divided into input and output flows of matter.

Two models (A and B) are defined. In both models, four processes are modeled: separate waste collection system (paper and cardboard, glass and light packaging waste), sorting and recycling system of separately collected waste fractions, a separate collection of biowaste with the utilization anaerobic digestion (AD) with pretreatment and subsequent digestate composting, and waste disposal site. System Model A represent the integrated system of municipal waste management, so it contains extra process that is the mechanical - biological treatment (MBT) of residual waste. The main output flow from the process of mechanical-biological treatment is solid recovered fuel (SRF) and refuse-derived fuel (RDF), which can be used in the process of cement production, can be co-incinerated in coal-fired power plants and can be used as a fuel in the dedicated SRF/RDF power plants. SRF/RDF fuel used in dedicated power plants can be with sufficient accuracy modeled as the output flow of the ash and the slag in the amount of 25% of the input mass flow. The flow of slag and ash is directed to the slag and ash landfill. In Model B, residual waste is not processed but is sent directly to the landfill.

By using this model, we wanted to examine the results of municipal waste treatment in case when the system is not complete or fully integrated.

Input flow into the system is municipal waste with a proximal mass composition defined on the basis of data from the Waste Management Plan of the Republic of Croatia for the period 2016-2022. The average composition of municipal waste for 2015 is defined as:

1. paper and cardboard - 23.2%,
2. plastic - 22.9%,
3. glass - 3.7%,
4. wood and textile - 4.7%,
5. tire and skin - 0.7%,
6. organic waste - 36.6%
7. inert waste - 6.1%
8. metals - 2.1%.

As the account year, 2020. Year is taken, when the Republic of Croatia needs to meet the appropriate targets for the separate collection and treatment of municipal solid waste. The input volume of mixed municipal waste is amounted to 1.356.000 tons, as it was announced to be landfill in the 2015 year, with the reminder, that 298.000 tons of waste, were sent to recovery in the same year. The following targets are assumed for the separate collection of individual waste fractions:

1. paper and cardboard - 60%
2. plastic - 50%
3. glass - 50%
4. metals - 50%
5. biowaste 50%.

3. ANALYSATION OF THE RESULTS

The results obtained are shown on Figures 1 and 2. Based on the results obtained, it can be concluded that the introduction of an integrated municipal waste management system, at the same time means establishing a new industry that produces the following approximate quantities of secondary materials: 13.000 tons of metals, 140.000 tons of secundary plastic, 22.500 tons of the glass and 170.000 tons of papers and cardboard. Also about 50.000 tons of compost will be produced.

In plants with anaerobic digestion reactors, 25.800 tons of biogas will be produced annually from the separately collected biowaste, which will serves as a fuel in a cogeneration plant with internal combustion engines. In the cogeneration units, electricity and heat from renewable energy sources are simultaneously produced. The main output of the mechanical-biological treatment (MBT) of residual waste will be 391.000 tons of solid substitute fuel (SRF/RDF). Part of this solid substitute fuel will be a biogenic origins, that means that is part of renewable energy sources. In such facilities, it is possible to foresee the co-combustion of a certain quantity of waste sludge from the waste water treatment plants. About 261.000 tons have been deployed at the landfill as the waste from the processing of various waste fractions. After the thermal treatment of solid substitute fuel remain approx. 25% ash as a solid residue, referring to ash and slag landfills or can be used in the construction materials industry. The remaining waste in the amount of 724.500 tons represents 43% of the total waste, which means that the goal of separate collection and recycling of 50% of waste is achieved. The total amount of landfill materials is less than a maximum of 25% of the total amount of input waste, which would also fulfill the another goal. From the results it can be concluded that in case the residual waste has not been processed in mechanical-biological treatment (MBT) plant, as it was simulated in Variant B (Figure 2.), and will been disposed on the landfill, the goal of maximum quantity of 25% of the input quantity of waste that can be disposed in the landfill could not be fulfilled. The results of the simulation confirm that only the complete or integrated municipal solid waste management system can achieve the set of goals which are defined in the waste management plan.
4. CONCLUSIONS

The transition towards a waste management system based on comprehensive separate collection was found to be advantageous, because in this way significant production of secondary materials, compost and energy will be established.

Figure 1. Model of material flows of waste in the complete municipal waste management system in the Republic of Croatia in 2020 - Variant A
Figure 2. Model of material flows of waste in the incomplete municipal waste management system in the Republic of Croatia in 2020 - Variant B.
Such establishment of the complete or integrated municipal solid waste management system requires the implementation of complex organizational solutions with the construction of technically sophisticated infrastructure facilities. The results of the simulation confirm that only the complete or integrated municipal solid waste management system can achieve the set of goals which are defined in the waste management plan.

REFERENCES

Abstract: Last financial crises have shown that financial institutions couldn’t absorb risks taken in period prior to the crisis. Today, uncertainty represents main focus for bank managers along with proper risk measurements. In Serbian banking sector we are facing multiple risks which are common with emerging markets, and some specific country risks which derive from our national economy environment. In this paper, we will show how banking industry approaches to the problems of risk and uncertainty after the financial crises and country-specific risks that may represent problem for development of complete financial sector in Serbia.

Keywords: risk, uncertainty, banks, Serbian banking system.

1. INTRODUCTION

Risks in banking operations are a feature of every banking business, so even neutral banking transactions are not without risk. With the acquisition of new instruments, new techniques and strategies, financial engineering, new banking products and, in particular, financial derivatives, the risk list is constantly expanding. Risks in banking conditions in Serbia have special weight, due to cumulative problems in the economy. A disagreement in the development of the economy and banking confirms the fact that investment in the economy is still quite a risky business. In accordance with the Banking Law, a whole set of decisions has been passed, which, among other things, regulates the area of lending and the risks associated with them. For bankers and lenders in general, the uncertainty is growing with changes in interest rates, changes in deposits and the inability of the debtor to repay the loan, but also under such circumstances as deregulation, moral hazard, as well as the entry of banks into those jobs that were not previously traditional banking. However, an integral part of the business policy of each financial company is risk management. The overall objective of managing banking risks is to optimize the risk and income relationship. Banks increase revenues by taking over and managing risk. Therefore, for the profitability of the bank, the management of risk and income relations is crucial. The remainder of the paper is structured as follows. Section 2 reviews theoretical background on risk and uncertainty in banking sector, while Section 3 offers review of some specific risk factors in Serbian banking, along with trends on regulation of banking activity and Section 4 concludes the paper.

2. THEORY OF BANK RISK AND UNCERTAINTY

The presence of risk and uncertainty in banking system is a long-standing issue. Financial operations have become more and more risky, and more than ever, the need for risk management is felt. The first step is transparency. It has become extremely important that banks, as well as all financial companies, provide detailed and thorough information about everything they do to effectively manage risk. These data are most interesting for
shareholders, followed by competent authorities as well as business partners. In modern financial markets there is no doubt financial institutions are exposed to various risks. The reasons are numerous: from insufficient diversification of business activities, entering risky and profitable business arrangements, to stock market shocks and global financial crises. Similar to other forms of economic activity in banking industry any uncertain fact is a risk. The risk profile of each bank is defined in the context of profitability and liquidity. According to some theory, the risk and profitability of the bank are in direct proportional relation, the higher the risk in business, the greater the potential financial reward is for bank. Maximization of profit with respect to liquidity is the determining factor of risk management. Financial risk is manifested in material and non-material form. The material component is the loss of part or the entire amount of the investment, while the intangible component is a loss of business reputation (references and image). Thus, in financial operations, the risk could accurately be defined as the possibility that the invested funds will not earn the expected rate of return, or will incur a loss. By analyzing the theoretical approach to risk, we will try to point out the key points and processes of risk generation. The globalization of banking operations and merger trends require management to identify the most important risks. This relates primarily to systemic risks, and, in particular, the risks arising from the lagging behind of banking management in monitoring the operations in unknown, geographically remote areas and markets, and to monitor transactions with unknown instruments and techniques. In the future, we will deal with risk management techniques, the methods used in its quantification, and the forms in which this risk can arise. It is very important to form a department for risk management within the banks themselves, especially for such banking markets as in transitional economies. Increasing integration of banking sectors in the world, contributing to innovation in small and emerging markets, enriches them in terms of products that can be offered, but at the same time all these innovations bear their own risks. It is very important to properly manage those risks and ensure the harmonious functioning of the banking sector. Financial risks have large impact on bank stability. Among all we can distinguish ones with highest impact: credit risk, liquidity risk, interest rate risk and market risk. Basel committee gives us definition of credit risk as: “Potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms”. Banks give loans and take on securities, which are nothing more than a promise of payment. When a borrower stops paying the promised principal and interest, these bad loans and securities result in losses that in the end weaken the bank’s capital. Since equity capital is usually no more than 10% of the amount of bank loans and risky securities, it does not take too much unsettled loan obligations before he bank’s capital simply becomes inadequate to absorb further losses. Liquidity is generally defined as the ability to meet debt obligations without incurring losses. Banks can manage their liquidity through various sources. Operating cash flows (from interest payment, service fees and other operational cash payments) represent high liquid assets. Repo transaction, asset securitization and issuance of debt obligations are another solution for maintaining liquidity. Interest rate risk represents risk that earnings from income-related assets will decrease or that interest costs will increase significantly, reducing the range between revenues and expenditures, and hence net income. Basel Committee defines three sub-types of IRRBB: (1) Gap risk arises from the term structure of banking book instruments, and describes the risk arising from the timing of instruments’ rate changes, (2) Basis risk describes the impact of relative changes in interest rates for financial instruments that have similar tenors but are priced using different interest rate indices and (3) Option risk arises from option derivative positions or from optional elements embedded in a bank’s assets.

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36Interest Rate Risk in the Banking Book
liabilities and/or off-balance sheet items, where the bank or its customer can alter the level and timing of their cash flows. The Basel Committee defines market risk as the risk of losses in on- or off-balance sheet positions that arise from movement in market prices. Market risk is the most prominent for banks present in investment banking.

3. BANKING INDUSTRY IN SERBIA- SPECIFIC RISK FACTORS

When we focus on Serbian banking sector we must make a few notions. It has been rapidly growing since 2000s, when major reforms in financial sector have occurred, and foreign banks received big portion of financial market. In transitional countries it is common that banks act as one and only creditors. Commercial banks play crucial role in emerging economies where most borrowers have no access to capital markets.[2] Serbian banking sector marks HHI\textsuperscript{37} in middle values, showing that concentration of five or ten biggest bank in amount of 1000. Currently in Serbia operates 30 banks, from which 23,5\% has domestic ownership, and 76,5\% has foreign ownership [3]. Predictions are that in next few years number of banks needs to reduce, so we can expect mergers and acquisitions, along with closing small banks. All of this represents a complete new reform of banking sector and we will wait and see how this process is going to take place. Prior to the last financial crises banking sector have had more relaxed credit policy and consequently credit were rising rapidly. That had big impact on bank profitability ratio, as income was generated from interest. On the other hand deposit potential hasn’t been rising accordingly with credits. Most of the credit potential was generated from foreign banks usually through some sort of loan. Financial crisis was a wakeup call for banks, to reevaluate their credit policy which drove NPL ratio to the 22,2\% during 2014yr, or in precise numbers 403,4 billion RSD.[3]NPL ratio shows us consequences of bank management during credit expansion. Brownbridge [4] says that most of the bank failures are caused by NPL’s. Even if we don’t take this definition as final, we saw in practice, during last financial crises, that NPL’s caused big loss in banking sector worldwide. If we notice that 59\% of NPL’s in Serbian banking comes from business sector which is in Serbian economy usually formed as ltd, we can see the chances of restructuring those loans are small. In the first quarter of 2017 NPL’s had been driven down to 16,8\% (341,7 billion RSD), with a percentage of business sector of 50\%.3]These numbers shows us that Serbian banking sector have faced, and still facing, with large amount of credit risk, driven by business sector on the first place.

![Chart 1. Gross non-performing loans, RSD(bln), NPL Strategy](chart)

\textsuperscript{37}The term “HHI” means the Herfindahl–Hirschman Index, a commonly accepted measure of market concentration. The HHI is calculated by squaring the market share of each bank competing in the market and then summing the resulting numbers. markets in which the HHI is between 1,500 and 2,500 points to be moderately concentrated, and consider markets in which the HHI is in excess of 2,500 points to be highly concentrated
Serbian authorities have recognized that NPL-s can lead to systemic risk in banking system and formed Working Group for development of NPL resolution strategy. In this document is stated that NPL’s represents the main issue in the Serbian banking sector. The level, structure and the nature of non-performing loans represent significant source of risk for banking operations, wherein main causes of generation and increase of non-performing loans point to the necessity of comprehensive and strategic approach regarding their resolution. In addition, accumulation of nonperforming loans in banks’ balance sheets produce negative impact on lending activities and therefore on economic activities as well, primarily due to the decrease of availability of potential source of funding both for the enterprises and for the population. Serbian economy depends on more business activities from domestic companies, and there is lack of sources for such companies to finance their growth. Some authors state that successful commercial banks induce credit growth, while in time when they are not successful they slowdown economic growth not only of financial sector. Along with credit risk, which is the biggest problem of Serbian banking sector, we will not discuss common types of banking risks such as: liquidity risk, interest rate risk, operative risk, solvency and others, rather we focus on a few country specific factors that can increase bank risk: national economy, disclosure of information from borrowers, lack of proper skills among employees. In means of national economy we highlight economic growth, measured by GDP.

In the chart 1 we can see that in 2014yr GDP growth rate was negative, recording -1.8%. In next two years this indicator had positive trend, recording 0.8% at the end of 2015; 2.8% at the end of 2016.and in the first quarter of 2017 GDP growth rate is 1.2%. Positive trends are accelerated from macroeconomic stability, improved business environment, demand recovery and implementation of structural reforms. Expectations on continuing positive trends are based on growth in economy with major recovering of foreign trade activity, which will also reduce the level of risk in business activity. These forecasts goes in favor of banking sector in Serbia, but any disturbance in the economic growth will have indirect impact on banks activity and risks to which they are exposed. With GDP growth rate being negative banks are facing more risk and it is difficult to increase credit activities, also with high level of NPL’s banks are more cautious with their lending policies. As long we have positive trends we can expect that banks will generate more credit activity that is needed for recovery of national economy. Disclosure of information is inducing bank risk as many borrowers fail to disclose all relevant information to the bank during loan application.

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38Gross domestic product
process. [7] Bank who lacks vital information about borrowers facing asymmetric information problem. This problem is most often manifested as adverse selection and moral hazard. Both of them lead to loan failure and loss to the bank, and directly affect credit risk. Qualitative characteristics of this type of problem makes it hard for banks to manage it, or even to measure its exposure. In order to reduce risk derived from asymmetric information banks have to improve their monitoring techniques, credit analysis, and to carefully record signals from the market that may reveal information that is significant for the bank. On the other hand, authorities have to improve legal system and disclosure of information. Legal system allows, for example, that mortgage become good solution in maintaining good credit score for healthy companies, and ensures banks that in the case of activation, whole process of sale and settlement won’t take too long. This king of practice makes mortgage cheaper way to ensure bank that you will repay your loan, from company perspective. Disclosure of information through financial reports at the end of the year is obligatory for all companies, but those data during the next year may become less valuable if company faced, or knows that will face, great downs in business activity. Encouraging healthy companies to disclose information on their businesses more often will have positive impact on economy overall, primarily these companies will be able to provide cheaper credit resources, while it will be easier for banks to distinguish good from bad borrower. Lack of proper skills among employees can be big risk generator for bank. Authors [8] found that banking crises have directly led to poor management of credit risk by institutions and lack of skills amongst loan officers respectively. Usually when loan officers comes on that position he receive some sort of training on how to evaluate credit requests, what techniques to use etc. This has to be continued during work engagement of loan officers in order to maintain high level of productivity. If we imagine that this process of training takes place only once, we see how big problem becomes later. Another specific thing with loan officers is that they have to improve their analytic skills regularly in line with new econometric solutions and new forms of risk arising from new types of business activity among borrowers and creditors. Does typical Serbian commercial bank recognize this fact, and what action it takes to improve its credit officers? We can partly respond on this question, in light of monthly payments. Statistic says that in Serbia average net salary in June 2017 was 49,238 RSD. Some statistics [9] says that loan officers have monthly salaries in average 63,422 RSD. Only to compare these information we can see that loan officer has no intention to be more effective or to put in some additional effort in order to reduce its company overall risk, because he receives just little above average remuneration in Republic. To make employees more effective and more risk oriented, bank should undertake activities as team development, seminars and courses in financial mathematics or risk evaluation for their employees who are important part of credit risk channel. Along with these activities reward for credit officers who have clients with good credit history should be considered. We agree that this step is not final in order to reduce bank risk, but it is significant in terms that trained credit personnel notice earlier signals that can increase the exposure of the bank.

4. CONCLUSIONS

Uncertainty represents emerging problem within banking industry in Serbia. Credit risk, as principal problem in Serbian banking, generally represents expression of unsolved risk exposures prior to credit loss. With development of technology and innovative financial services, new types of risks are rising rapidly. Bank as institution has to recognize these problems on time and be able to respond. Nevertheless, we witnessed that big banks, with good management, working in developed economies, have not been able to overcome
financial problems derived from greater risk exposure. It is important that banks and authorities work together in order to make credit supply which responds on demand, without taking additional risk and making another credit boom which will produce more NPL’s. We saw step forward in Serbian banking as authorities developed NPL’s strategy, and we hope to see much more resolution like this, also much bigger cooperation between financial institutions and regulatory organs. Only by working together they can create good financial background for business development and economy growth in all means. Regulators need to be sure that banks are doing their activities without taking too much risk, and to control their capital requests frequently, along with checking concentration level in banking sector in order to prevent disturbance of financial system. Banks, on the other side have to encourage good creditors to apply for loans, with stimulus actions for financing business growth and production. Furthermore, they have to improve their internal policies and make their employees more educated in the field of risk recognition and management. This way, banks can create better conditions for their own business, reduce the risk level, and help national economy to recover its activities. For a bank as institution there are numerous problems that can arise from bad risk management, then again we can only predict effects on whole banking sector, especially in emerging countries.

LITERATURE

THE FUNCTION OF PRIVATE SECURITY IN PROTECTION AT CRITICAL INFRASTRUCTURE

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Abstract: Private security, includes the provision of services or performance of duties to protect persons, property business and physical technical protection unless they are within the exclusive jurisdiction of state authorities. Physical and technical protection of the security of persons and property simultaneously or combined application of physical and technical protection. Critical infrastructure includes some institutions of professional private sector itself, distribution channel, "a network" feature and information to ensure smooth and continuous flow of people, goods, service provider, which is essential for the stability of economic and security system of the country and has a direct impact on national security, national economy, public health, safety of the population and efficiency of government action.

Keywords: private security, physical and technical protection, critical infrastructure.

1. INTRODUCTION

Today's world is characterized by increased porosity of borders, privatization of public goods, weakening of the central function of the state and deterioration of its power in law enforcement, as well as fragmentation of the security sector, which traditionally fell within the competence of the state. Pressured by a multitude of different threats and processes, states have lost monopoly over the implementation of the security function. The consequence of this process is that states have given up their role as the only legitimate factor and guarantor of security for private military and security companies. The emergence of the private security sector, within which private non-state security actors operate, are independent from the state, represent a very important moment in the development of both modern international relations and the functioning of the countries themselves. The global private security industry has grown rapidly over the past ten years. Private security is an important segment for achieving human needs and corporate interests in the context of the guaranteed rights and state of national security. [1] Therefore, the protection of critical infrastructure is the basis of maintaining the functionality of the community in emergency situations. The main goal of protecting critical infrastructure is to maintain continuity in its functioning in such situations. The unimpeded functioning of the critical infrastructure system is a priority of the local self-government communities, each state, as well as transnational creations. Critical infrastructure systems are built to provide services for several generations over several decades. These systems have become very integrated into modern life. Nowadays, people expect to be able to travel freely at any time, and have communication links whenever they wish. In modern industries, it is highly anticipated that there is a necessary available infrastructure that should enable the transport of raw materials,
final products, the supply of food and durable goods to markets and ports, and enable the exchange of ideas and financial transactions electronically. From this it can be concluded that physical and technical security plays an important role in the protection of critical infrastructure. [2]

2. IDEAL DETERMINATION OF CRITICAL INFRASTRUCTURE

In practice, there are more definitions of critical infrastructure, but all of them, in principle, relate to assets and assets, which is crucial for the smooth functioning of the economy and society. Examples include several definitions. United States: “Critical infrastructure and basic resources is a term that relates to a wide range of different assets and assets that are necessary for the daily functioning of social, economic, political and cultural systems in the United States. Any interruption in elements of critical infrastructure poses a serious threat to the proper functioning of these systems and can lead to damage to property, human casualties and significant economic losses”. Australia: “Critical infrastructure represents those physical facilities, supply chains, information technology and communications networks that, if destroyed or disrupted for a long time, could significantly affect the social or economic well-being of the nation, or would affect Australia's ability to maintain national defense and provide national security.” European Union: “Critical Infrastructure represents a property, system or part of it located within the territory of a Member State and which is necessary for the maintenance of key social functions, health, safety, security, economic or social well-being and whose interference or destruction would have a significant impact To the Member State “. European Union: "European Critical Infrastructure - ECI, means a critical infrastructure located in the territory of a Member State whose interference or destruction would have a significant impact on at least two Member States. The importance of disturbances in the functioning of critical infrastructure elements should be assessed on the basis of the criteria of interdependence. This implies the effects of inter-sector dependence on other types of infrastructure.” In general, defining the critical infrastructure cadre in many countries is different and depends on a variety of specificities, ranging from political opportunities to geographical locations. [3] Critical Infrastructure has become an essential element of national security in the 1990s, and its protection is now one of the priorities of each state. According to the conclusions of the Civil Protection Committee of the Euro-Atlantic Partnership Council (EAPC CPC) since 2002, the annual meeting in Brasov, Romania, which was later adopted by the Senior Civil Emergency Planning Committee-SCEPC) the term critical infrastructure includes, but not exclusively: food; Water; Agriculture; Health services and emergency services; Energy (electric, nuclear, gas and oil, dams); Transport (air, road, rail, harbors, waterways); Information and telecommunications; Banking and finance; Chemical plants; Defense industry; Mail and distribution of goods; National monuments and other cultural values. [7]

3. PRIVATE SECURITY

The second half of the 20th and the beginning of the 21st century were marked by relatively rapid changes that irreversibly changed the world. This period marks several events and processes that are significant for the emergence of private security agencies. The causes of their emergence can be divided into direct incentives to their emergence and to incentives that come as a result of a wider range of social changes. The joint activities of three key factors - the end of the Cold War and the vacuum it has caused in demand and security, transformation in the nature of warfare and the normative growth of privatization in all sectors - created new spaces and requirements for the formation of a private security
industry. The end of the Cold War has led to a significant reduction in the size of national armies, and at the same time to a rise in global insecurity. This development of events has created favorable conditions for supplying the private security industry to new people and equipment, as well as for increasing the requirements and conditions for its engagement. The end of the Cold War has led to the demobilization of more than six million soldiers, many of whom have found a new job in the private security sector. The end of the Cold War resulted in the fact that more weapons and military equipment were found in private hands than in state’s ownership, and the number of unstable and conflict areas doubled. [1] Therefore, special attention should be paid to private security agencies that have emerged as a result of the increasing need for security services sought by local communities, ordinary citizens, private companies, international organizations and agencies, as well as the countries themselves. Some of these services, such as facility security and static security, in both developed and developing countries are typically provided by unarmed local private security and physical security agencies. Other services enable undisturbed functioning of state armed forces in the field of military engagement in different environments. Private physical security agencies have intensified their efforts to display themselves as professional and successful providers of a security system reform solution. [1] As defined in the Law on Private Security, facilities necessarily provided are objects of strategic importance for the Republic of Serbia and its citizens, as well as facilities of special importance whose damage or destruction could have serious consequences for the life and health of people or which are of interest for Defense of the country. Under the mandatory secured facilities, the premises in which these facilities are located are also considered as their integral part, as well as the accompanying facilities that are in the function of those facilities. The protection of the mandatory secured facilities shall be performed as a business function of the legal entity to whom these facilities belong, in the manner prescribed by the general act on organization and systematization. The protection of the mandatory secured facilities, in accordance with the general act on organization and systematization, is carried out by contractual engagement of subjects licensed for the performance of private security activities or as an organized self-protection activity. In a legal entity that has objects of special importance for the defense of the country, self-protection activity must have an organized planning, organizational and control function. Legal persons and entrepreneurs for private security, in accordance with the Law on Private Security, may have a license for jobs:

1) risk assessment in the protection of persons, property and business;
2) protection of persons and property by physical and technical means, as well as maintenance of order at public gatherings, sports events and other places of citizen gathering in a part that is not within the competence of the Ministry of Internal Affairs;
3) planning, designing and supervision of the implementation of the system of technical protection, assembly, commissioning, maintenance of the system of technical protection and training of users;
4) securing the transportation and transfer of money and value items in a work that is not within the competence of the Ministry. (the law)

In the Republic of Serbia, private companies for physical and technical security are the most frequent. These firms provide services of physical and technical security of persons, facilities and property primarily in non-conflict areas. [4]

4. THE FUNCTION OF PHYSICAL AND TECHNICAL SECURITY IN PROTECTION OF OBJECTS AT CRITICAL INFRASTRUCTURE

Private security today carries out activities in the field of physical and technical security, as well as prevention of losses, information security, and protection of communications, fight
against high-tech crime, consulting, access control, fire protection, maintenance of public order and peace at events and gatherings, and more. The special advantage of the private sector is that it can act across the borders of states, which is important for many employers. Operational measures include even the work of infiltrating employees and secret tasks, in order to determine the truth about selling business secrets, stealing inventory, unauthorized access to files. [1] When designing a protection measure, it is necessary to take into account another crucial element of critical infrastructure - interdependence. Interdependence exists between individual networks or systems, between individual regions or between individual countries. Therefore, data on the protection of critical infrastructure are exchanged between states today and common critical protection systems are established. Protection is possible only through joint action because omissions in one country can lead to a large negative result in a wider area, i.e. have a cascading effect. [7] Private security services are not part of the police or other security activities carried out by public administration bodies. Legal entities and entrepreneurs that have a license to perform private security activities cannot perform the tasks of protecting persons and property that are in the exclusive competence of state bodies and to apply operational methods and funds, or operational-technical means and methods applied by these authorities on the basis of special regulations. (Law on Private Security) During the performance of physical protection tasks in accordance with the law on private security in critical infrastructure facilities, the security officer is authorized to:

1) check the identity of the person entering or leaving the facility or space provided in the protected area itself;
2) inspect the person or vehicle at the entrance or exit from the facility or space and in the protected area itself;
3) prohibit unauthorized persons from entering and accessing the facility or space provided;
4) order the person to move away from the facility or space provided, if the person is unauthorized;
5) warn a person who by their behavior or omission of duty may endanger their safety, the safety of others, or cause Damage and destruction of property;
6) temporarily detain a person who has found himself in the facility or area in the perpetration of the criminal offense and serious violations of public peace and order, until the arrival of the police;
7) use the following coercive means:
   (1) binding agents,
   (2) physical strength,
   (3) specially trained dogs,
   (4) firearms, under the conditions lay down by this Law and the law governing the use of weapons by an authorized police officer.

In the past seven years, in Serbia and globally, there have been significant economic, social and political changes that have influenced the flows and dynamics of privatization of security. The most important ones are the following: the global economic crisis that deepened the domestic crisis in the economy, the legal (un)arrangement of the private security sector and reconfiguration of political power. All negative economic trends on the territory of the Republic of Serbia also affected the private security sector. Private companies, faced with high market pressure and pressure from the state, are forced to reduce their costs in every possible way, so either they canceled contracts with private security firms or reduced the cost of their engagement. In order to remain competitive, private security companies are forced, like other businesses, to work in the gray and black zone, or to resort to different ways of avoiding payment of taxes to the state, but also paying workers at a minimum labor cost. [6]
5. EXAMPLE OF THE PROTECTION OF CRITICAL INFRASTRUCTURE IN THE REPUBLIC OF SERBIA BY PRIVATE SECURITY INSURANCE

By the beginning of the 2000s, critical infrastructure facilities in Serbia were provided by their own internal security service. However, in recent years, some of these services have been reorganized into separate business entities. These security companies are still state-owned, and for a while they kept a monopoly on providing security services for critical infrastructure. In addition, some internal security services have remained and worked in parallel with private security companies. New models also appear: in the case of the Djerdap hydroelectric plant, for example, security services have been partially marketed and private security companies are engaged to protect this critical infrastructure. Hydroelectric power plants Djerdap constantly provides self-protection activities and contractually engaged private security companies. Security services in HPP Djerdap until recently exclusively provided the internal security of the hydroelectric power plant (self-protection activity). Private security firms were engaged gradually, and it was made possible by changes in Serbian privatization legislation. By 2013, the only private security company that was hired was the daughter company, Djerdap Services. Thus self-protection activity covers 30% of physical security, 70% of technical protection and 90% of fire protection, while the contracting company provides 70% physical security, 30% technical protection and provides other types of services. Additional security, if necessary, is provided by the regional police administration with the border police. Special and regular units of MIA and VS from the wider region of eastern Serbia are included in the next ring of protection. In the end, as far as the border area is concerned, the fifth ring is made up of Serb-Romanian military and police forces that cooperate through EUROPOL and through the Partnership for Peace program. The advantages of engaging external security of HPP Djerdap: more professional services, better formulated tender conditions, procurement of equipment for technical protection, less nepotism, transformation of company Djerdap AD from a state company into a joint stock company as a model for other potential private security companies, reduced local influence Employment policies. The bad sides of the engagement of the external security of HPP Djerdap: more professional services, better formulated tender conditions, procurement of equipment for technical protection, less nepotism, transformation of company Djerdap AD from a state company into a joint stock company as a model for other potential private security companies, reduced local influence Employment policies. The bad sides of the engagement of the external security of HPP Djerdap: division between internal security and engaged companies and, consequently, unclear delineation of related responsibilities and responsibilities, salary differences, and robust communication are included in the TETRA system. Difficult communication between all stakeholders - internal security and companies contracted under contract, Short contractual terms (one year); As a result, eventually a new contractor takes the time to adapt to a new job. Inability to control the quality of contracted / provided security services and problems with respecting the prescribed deadlines for public procurement cycles. [8] The legal framework in Serbia does not prescribe clear security conditions for critical infrastructure, and therefore it is not clear whether private security can or should play a role in the protection of this infrastructure. The Law on Private Security specifies the procedures that must be observed when the security of these facilities was assigned to an internal security service by a private security company. The government should have detailed criteria for determining critical infrastructure by May 2014, but has not done so to date. [8]

6. CONCLUSION

It can be concluded that the private security industry is a significant element of the security component of every state, but also of the international community. Due to the growing need for international interventions that are wrapping up a wider range of actions - from war,
through humanitarian aid, support to peace operations, post-conflict reconstruction, to security sector reform - there is a growing need for increasing engagement of the private security industry. This development of events results in an increasing need for control, transparency and accountability of actors in the private security industry. The wide range of services offered, as well as the fact that states, international organizations and private corporations are increasingly relying on them, suggests that privatization of security is a long-term trend that leaves profound consequences on the nature of the state and its monopoly in the application of force. However, the real risk of irresponsible behavior of the entire security industry is not their activities in the countries of origin, but in carrying out tasks in weak and collapsed countries. Local governments in these countries often have no power, nor the ability to control these companies. With the dramatic growth of the size and impact of the private security industry, there is a growing need for analysis, discussion and innovative legal solutions. Any response to the phenomenon of the private security industry must take into account the change in the nature of international conflicts, which implies that economic resources are changing to the military much faster than before, and non-state actors can finance the war sometimes more successfully than the countries themselves. [1] The basic questions posed to the social community that organize the critical infrastructure system are from which and from what should be protected and how to organize the critical infrastructure system. The answer to these questions should provide concrete solutions that address potential sources of threat. At the same time, this is the path to establishing and organizing a security system that begins with the explanation, assessment, classification of forms and sources of threat to the values of the community. [2]

LITERATURE

[5] Stajic, Lj., *Control of private security sector abroad*, Faculty of Law in Novi Sad, UDC 351.74 / .78
Abstract: The analysis of available study programmes in the field of Disaster Risk Management and Fire Safety Engineering in Balkan region was carried in order to assess regional educational capacity in subject area. The analysis has shown that there is an insufficient number of master programmes and skilled graduates in subject areas insufficient for regional or national needs. The resilience of the Western Balkans societies to hazards has to be improved, and that can be done by introducing new study programmes and lifelong learning courses in educational offer. It will provide a sustainable educational foundation in Disaster Risk Management and Fire Safety field in Western Balkans countries and ensure national highly skilled professional resources and regional capacity for resilient society. The paper presents the results of the research on existing study programs in the Balkan region, realized within the ERASMUS + project Knowledge for Resistive Society.

Keywords: resiliency, higher education, disaster risk management, fire safety engineering, Balkans

1. INTRODUCTION

In the past decades the number of natural and anthropogenic disasters and fires has shown a significant growth in the Western Balkans (WB). Human losses, extensive damages to the urban areas, negative environmental impact and further weakening of the regional economy are some of indicators of increasing vulnerability. The WBs are highly prone to natural hazards and to the impacts of climate change. Furthermore, within the last 15 years most of the nations in the region newly gained their independence following a regional conflict and have undergone major structural changes. The newly independent nations and their urban areas sustain inadequate institutional capacities and have significant socio-economic and spatial vulnerabilities, increasing their risk to disasters initiated by natural hazards [1].

Preliminary surveys, targeted to identify the problem origin, indicated that competences, knowledge and skills of the existing staff in the field of Disaster Risk Management and Fire Safety Engineering (DRM&FSE) are insufficient to solve its growing problems, as they acquire knowledge and skills from other engineering disciplines. Knowledge and skills shortages in this sector are already being identified by great interest shown after 2014 flood in the WB, while the expected climate change and hazard events expansion will only exacerbate the situation.

The recent devastating floods in the WB region, notably in Serbia and Bosnia and Herzegovina in 2014, confirmed that most countries of this region continue to have...
difficulties integrating risk reduction into public investment planning, urban development, spatial planning and management and social protection. With the impact of climate change, combined with changes in land-use patterns, risks of disasters will further increase in the coming years.

Within the expanding emergency sector labour market, an urgent demand is expected for more educated and trained staff, as well as for continuing education in DRM&FSE field. There is a rising need for multidimensional approach and interdisciplinary engineering competences. The analysis of available master study programs in the field of Disaster Risk Management and Fire Safety Engineering in Balkan region was carried out within K-FORCE project, financed by ERASMUS+ programme.

A list of all master programs which related to the area was compiled, even though their title was not specifically “Disaster Risk Management and/or Fire Safety Engineering”. Therefore, Master programs in the field of Civil Engineering, Civil Protection, Environmental Protection, Sustainable development and Climate Change and other related fields have been listed. The survey showed that there is an insufficient number of master programs in subject area in Balkan region. Number of graduates is insufficient for regional or national needs. Consequently, there is a need for experts who are competent to operate in all phases of the catastrophic events and that are able to solve problems in the field.

Considering before mentioned, in WB region, available education is becoming insufficient and unsustainable without further modernization.

2. ENHANCING KNOWLEDGE AND EDUCATION IN DISASTER RISK MANAGEMENT

In recent years the number and severity of natural and manmade disasters has significantly increased. In addition, future disaster will be extreme and more complex with far-reaching and longer-term consequences as a result. Consequently, Decision No 1313/2013/EU on a Union Civil Protection Mechanism emphasizes an integrated approach to disaster management as increasingly important (Decision of the European parliament and of the council, 2013). To become resilient society, it is necessary to implement the EU Civil Protection Mechanism at a regional level and intensively cooperate and communicate, for which a new skilled young workforce is required. According to European Parliament Resolution Community approach on the prevention of natural and manmade disasters, prevention has a crucial significance for protection against disasters, requiring a further action. Reaching the prevention objectives and carrying out prevention actions, improving the disaster risk knowledge base and facilitating the sharing of knowledge, best practices and information, were defined as the first ranked action to take. Education and training (ET 2020) lie at the heart of the Europe 2020 strategy (ET 2020) to exit the recession and establish the foundations for future knowledge-based growth and social cohesion. The same goal is promoted in multiple EU documents, e.g.: European and Mediterranean Major Hazards Agreement (EUR-OPA), South East Europe 2020 Strategy – Jobs and Prosperity in the European Perspective (SEE 2020 Strategy) and Supporting growth and jobs – an agenda for the modernization of Europe's higher education systems COM (2011) 567 final. The above listed are common objectives and goals both for EU and WB region, considering the on-going European integration process in the Balkans. The resilience improvement by developing higher education (HE) is in compliance with WB countries’ national HE strategies and action plans, as well as national strategies in the field of fire protection and emergency. Resilience to natural hazards should be a core element in the design of development programs. We need to better understand how and where we are vulnerable to disasters, and how best to manage the risks we face. Informed, knowledgeable and educated
citizens and public authorities, with the human and financial resources to back them up, are the key to successful disaster risk management planning and implementation (Disaster Risk Assessment and Risk Financing: A G20 / OECD methodological framework, 2012).

3. RESEARCH METHODOLOGY

Climate change, fast urbanization and new technologies, in interaction with irresponsible human activities, cause the need for multidisciplinary and interdisciplinary engineering competences, knowledge and skills. Considering these, available HE is insufficient and unsustainable at regional level without modernization and further development. The brief analysis of available study programmes in the field of Disaster Risk Management was conducted on the regional and European level [4]. WB countries included in this research were Serbia, Bosnia and Herzegovina and Albania.

The subject area, Disaster Risk Management and Fire Safety Engineering, refers to Multidisciplinary/Interdisciplinary disciplines, with Engineering and engineering trades as the dominant academic discipline, while other disciplines addressed by curricula being Environmental protection, Architecture and Construction, Civil Protection, Fire Science, Climatology, Hydrology, Seismology and Economy.

A list of all master programs which related to the area was compiled, even though their title was not specifically “Disaster Risk Management and/or Fire Safety Engineering”. Therefore, MPs in the field of Civil Engineering, Environmental Protection, Sustainable development and Climate Change, Environmental Engineering and other related fields have been listed.

The research of study programmes in Disaster Risk Management and Fire Safety was conducted through the following steps:

- Visit to the website of the national accreditation body of each of the countries to find the full list of accredited HE institutions and their programmes where available;
- Selection of the accredited programmes that may refer to the subject area, Disaster Risk Management and Fire Safety;
- Making of the list of HE institutions with the programmes;
- Searching for the information on the selected programmes at the websites of the HE institutions;
- Narrowing the list of programmes to those actually dealing with some aspects of Disaster Risk Management and Fire Safety;
- Preparation of the cumulative table with data on relevant programmes;
- Commenting the results.

Within an analysis of the Disaster Risk Management and Fire Safety Engineering programmes in Europe and Western Balkan Countries, collected data included the following categories:

- Country offering the program
- Academic Title of program
- Host Higher Education Institution (University/Faculty/ Department), offering the program
- Risk Area
- Number of years Since the program has been operational
- Number of students enrolled
- Duration of program in years and semesters
- Tuition Fee
- Programme Description, including objectives and target audience
- Admission requirements
In this regard, the following section will give an overview on master programmes related to the area that are being offered in Serbia, Bosnia & Herzegovina, Albania and in EU countries.

4. AVAILABLE DRM & FSE STUDY PROGRAMMES

4.1 Available DRM & FSE study programmes in WB

<table>
<thead>
<tr>
<th>No</th>
<th>Country, City, Higher Education</th>
<th>Bologna 1st level study program</th>
<th>Bologna 2nd level study program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Serbia, Novi Sad University of Novi Sad, Faculty of Technical Sciences</td>
<td>Disaster and Fire Risk Management Academic studies, Bachelor, (240 ETCS)</td>
<td>Disaster and Fire Risk Management Academic studies, Master (60 ETCS)</td>
</tr>
<tr>
<td>2</td>
<td>Serbia, Niš University of Niš, Faculty of Occupational Safety</td>
<td>n/a</td>
<td>Occupational safety - Fire Protection Engineering Academic studies, Master (60 ETCS)</td>
</tr>
<tr>
<td>3</td>
<td>Serbia, Niš University of Niš, Faculty of Occupational Safety</td>
<td>n/a</td>
<td>Environmental Protection Eng. - Emergency Management Academic studies,</td>
</tr>
<tr>
<td>4</td>
<td>Serbia, Belgrade University of Belgrade Faculty of Security Studies</td>
<td>n/a</td>
<td>Security Studies Academic studies, Master (60 ETCS)</td>
</tr>
<tr>
<td>7</td>
<td>Serbia, Novi Sad, Higher Technical School of Professional Studies in Novi Sad</td>
<td>Environmental protection Eng. - Civil Protection and Rescue in Emergency Situations Professional studies,</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Serbia, Zvečan, Higher Technical School of Professional Studies</td>
<td>Occupational safety - Fire Protection Professional studies,</td>
<td>Occupational safety - Fire Protection Professional studies,</td>
</tr>
<tr>
<td>9</td>
<td>Albania, Tirana Department of Civil Engineering</td>
<td>n/a</td>
<td>Environmental Engineering Professional studies,</td>
</tr>
<tr>
<td>10</td>
<td>Albania, Tirana Department of Agro-Environment and Ecology</td>
<td>n/a</td>
<td>Renewable Energies Academic studies, Master (120 ETCS)</td>
</tr>
</tbody>
</table>
In Serbia, 3 master academic study programs fully focused on DRM&FSE were found. There is one master academic programme implemented at University of Novi Sad (Disaster Risk Management and Fire Safety) and two master programs in University of Niš (Emergency Management and Fire Protection Engineering). Also, there is also one 1st level – bachelor academic study program, Disaster Risk Management and Fire Safety, at University of Novi Sad. Disaster Risk Management and Fire Safety programme at University of Novi Sad fully covers the field related to the study of natural disasters and fires, monitoring, measures for their prevention and mitigation of consequences. Other study programs curricula are different, but subjects’ common ground is that they are dedicated to teaching the students to deal with the consequences, instead the disaster and fire prevention. The majority of programs are in fire protection field, and there is a lack of subjects treating fire risks theory and fire safety issues. Preventive measures are treated only as prescriptive ones; although contemporary fire safety engineering is about performance based measures, risk theory and engineering judgment. Very few programs are in the emergency situations or civil protection field. However, there is also one master study programme implemented at University of Belgrade, where crisis management in various areas and security measures are studied, and one elective group studies the field of emergency situations. Regarding the professional studies, there are 3 specialist study programs or modules in Serbia - Fire Protection and Rescue in Emergency Situations, Occupational safety - Fire Protection and Rescue and Fire Protection. In Bosnia & Herzegovina, 2 master study programs that include subjects dedicated to DRM&FSE were found – at University of Sarajevo and University of Tuzla. These subjects are mainly concerned with Crisis and emergence management, as well as new technologies, tools and equipment for fire protection. Regarding the professional studies, there is one specialist study programme in Bosnia & Herzegovina - Specialist Graduate Professional Study of Safety in Banja Luka. There are no higher education study programs in the field of Disaster Risk Management and Fire Safety Engineering in Albania. However, at Polytechnic University of Tirana, within Environmental Engineering master programme, there is one subject dedicated to Disaster Management, mainly concerned with environmental impact and climate change scenarios. At Agriculture University of Tirana, within MP Renewable Energies, there is one subject dedicated to Disaster Management, mainly concerned with environmental risk, and environmental management.

Western Balkans’ higher education needs to respond and to educate and train young people for the sector that will significantly grow as these countries need to fulfil Chapter 27 requirements according to EU Enlargement Strategy.

### 4.1.3. Discussion of findings

The research showed that there is an insufficient number of master degree programs in WB region to ensure sustainable and uniform capacity building in human resources in this area,
and academic bachelor studies are implemented only at University of Novi Sad, Faculty of Technical Sciences in Serbia. A similar program does not exist even in neighbouring European countries, and the current situation in HE in this field is not self-sustainable, because there are no doctoral programs to ensure future researching staff. Number of graduates is insufficient for regional or national needs. Consequently, there is a need for experts who are competent to operate in all phases of the catastrophic events and that are able to solve problems in the field. Also, there is a need for education of competitive experts who will be able to create a sustainable financial plan for disaster preparedness and preventive measures, according to regional economy resources. At this moment, existing HE programs do not meet the mentioned WB countries’ needs for qualified staff. In order to improve regional resilience to hazards and capability for regional cooperation in risk prevention and response, it is necessary to provide the required number of multidisciplinary experts by modernizing and developing HE at the regional HEIs in subject field. Aim is to build regional-based disaster preparedness and a culture of safety and resilience at all levels. The WB HEI needs to assess the level and quality of HEIs capacity (infrastructure, facilities, laboratories, workforces etc.) in this field and to identify the key competences, knowledge and skills necessary for contemporary practice and future needs. A master study programs should be developed to satisfy various criteria, according to regional needs for resilient society, such as the shift from reactive to proactive actions and developing a culture of prevention. Based on the above, the project proposal Knowledge FOr Resilient society – K-FORCE was successfully prepared by University of Novi Sad in cooperation with 11 HEIs from Denmark (DTU, AAL), Sweden (LU), Slovakia (UNIZA), FYR Macedonia (UKIM), Bosnia and Herzegovina (UBL, UNTZ), Albania (UT, EPOKA), Serbia (VTSNS) and 5 non-academic partners (Protection and Rescue Directorate of the Republic of Macedonia, National Fire Safety Association of Republic of Serbia, European Youth Parliament Serbia, Ministry of Security of Bosnia and Herzegovina: Protection and Rescue Sector and Sector for International Cooperation and European Integrations and Union of chambers of commerce and industry of Albania).

The K-FORCE project proposal has been selected for funding in ERASMUS+ program Capacity Building in Higher Education – EAC/A04/2015. The three years period of the project realization has started in October 2016. The project goals answering to above-mentioned issues will be achieved through development of innovative master studies implemented in six HEIs in the region and PhD studies implemented at UNS, Faculty of Technical Sciences (FTS) as well as through continual knowledge improvement of staff already working in this field through newly developed LLL courses. It will help harmonization of new programs content with the region’s needs. Final goal is to produce capable experts, able to withstand difficult requirements of today and tomorrow.

5. CONCLUSION

Climate change, fast urbanization and new technologies, in interaction with irresponsible human activities, cause the need for multidisciplinary and interdisciplinary engineering competences, knowledge and skills. Considering these, available higher education is insufficient and unsustainable at regional level without modernization and further development. The analysis of the available master study programmes in the field of DRM&FSE has shown that there is insufficient number of master degree programmes in Balkan region. Consequently, there is a need for experts competent to operate in all phases of the catastrophic events and that are able to deal with problems in the field. In order to improve regional resilience to hazards and capability for regional cooperation in risk prevention and response, it is necessary to provide the required number of multidisciplinary
experts by modernizing and developing higher education at the regional HEIs in the subject field. Professionals in DRM&FSE area should also expand and upgrade their knowledge and skills through LLL courses. Aim is to build regional-based disaster preparedness and a culture of safety and resilience at all levels according to EU Integration Strategies and National relevant strategies

REFERENCES


Abstract: Negotiation is a peaceful option for resolving hostage taking or other situations, in order to avoid high violence, injury and death in using force. In modern time, as latest law enforcement tactical approach was developed in New York police, by psychologist and police lieutenant, after Munich terrorist incident. Psychological knowledge, principles and skills were applied by implementing psychologist in the team, as well. Psychologist role is complex, mostly oriented to assessment and counseling about behavior, within the operational context. Appropriate training and ability to work in dynamic high-stress settings in psychologist and team were found necessary. Effective communication skills and hostage taker’ personality and motives profiling are important for making negotiating strategy, while familiarity with specific stressors and ways of dealing are useful for stress management. Article is mainly oriented to introducing psychological aspects in hostage negotiation, in order to enhance law enforcement and military personnel training and practice.

Key words: hostage negotiation, operational psychology, stressors, assessment

1. INTRODUCTION

Crises (hostage) negotiation has been described as most significant development in law enforcement agencies over past several decades. It was found extensive literature, historical changes given the philosophy and practice in field development, that give multi-aspect psychological sciences possibilities of view. The hostage incident defer from others, defined as one in which at least one perpetrator hold one or more person against their will in the location known to the law enforcement. Options for resolving are negotiation, tactical assault and apprehension, killing, suicide or hostage taker escape. The hostage negotiation as a modern “soft” approach means peaceful removing threat by rescuing hostages, followed by chance of nonviolent hostage taker arrest. The ultimate aim is peaceful resolution, which means avoiding loss of life or injuries. Negotiation is a complex, high risk, dynamic and unpredictable process, based on behavioral psychology and psychotherapeutic lectures, in which all participants are at risk. It is dynamic interaction between main players (hostage taker, hostage and negotiator) side influenced by psychologist, on which external factors (organizational, social, political pressures or time) tent to impinge (Herndon, 2009). Communication strategies are used to buy time and intervene to control hostage taker behavior, by influencing on emotions and upgrade their rationality to problem-solve. (Hatcher, et al., 1998, Jianqing, 2014) Delaying time until the fundamental human needs, biological and psychological, will force him to make concessions, by time reducing anxiety and increasing rationality reduces expectations and produce rapport, that increase negotiator’ ability for influence on the hostage taker (Jones, 2000). As practice originated in 1970s, after the massacre in Munich terrorist incident, prompting some pioneer activities in New York Police Departments and FBI. A detective psychologist noted lack of literature about negotiation technique in law enforcement and with officer
Lieutenant developed a new crises negotiation tactic. After developing specific crises negotiation theoretical model and technique, the transformation from first to second generation was done, so coping with terrorism and political events transform in dealing with unexpected crimes. So, police routine was upgraded with a new standard procedure, while crises negotiation psychological study was implemented in the police strategies and techniques, and also used in selection of personnel and assessment of personality and behavior of all participants and the process, by implementing psychologist in the team. 

**Crises negotiations** term is also used, or crises intervention is paired with negotiation. A crises can be security (in Macedonia is defined in Law of Crises Management, 2005, in which negotiation is not mentioned) or psychological term (defined in DSM-IV). Hostage negotiation can be beneficial within incidents like: suicide intervention, missing persons, violent crime and incidents, political protest, other and political crisis, firearms operations, kidnapping and/or extortion; prisoners planning to escape, criminal sieges, religiously motivated, terrorist and hostage incidents. There are differences in motive of taking captives between hostage and non-hostage situation; first case “instrumental” reasons need police or authorities to meet specific hostage taker demands, having no interest to do violence in hostages; while in the second reasons are intangible, given the high emotional state (eg. anger, jealousy, frustration) in “holder”, although emotional experience is not excluded in the first case (Vecchi, et al., 2005). Briefly, critical incident can be explained in some stages, as: 1. **Stage of panic** is most critical. Hostage taker is trying to control hostages, while they are trying to find way out experiencing fear, anger and panic. In hostage taker panic is determinate of their motives - criminal or terroristic, so level of planning and aims defer. 2. **Stage of uneasy calm**, in which contact needs to be established and active listening began. While hostage takers (after securing the hostages) start to make plan for action and list of demanding, the negotiator task is to determine medical or other needs of the hostages and the hostage taker. 3. **Stage of negotiation** is an exchanging favors process in order to resolve a conflict, in which potential for peaceful outcome shows up; and 4. **Stage of resolution: peaceful** - after finding a common ground, hostages are released, followed by hostage takers’ surrendering; or **tactical** as last option, decision worn in cases of: sensed murder-suicide of hostage taker; continuously changed demands becoming impossible to meet; mental state becoming unpredictable; impasse of negotiation process; or in case of determination of immediate danger in hostages. (Thomas, 2011) 

Team need to be very good trained, and accept sacrifices in this high demanding profession, given it may take hours or days and have possibility for injuries. Dominantly for these incidents SWAT teams had been developed, implementing military tactic for this and similar incidents. According to FBI, the hostage negotiation team consists of a **SWAT unit tactical team** coordinated by tactical team leader, at least three **negotiators**, and **on-the-scene commander** that coordinate all personnel. While negotiators work on bringing nonviolent resolution of the incident, SWAT teams stand ready to provide force when necessary. **Primary negotiator** engage the dialogue, **second team member** is a coach that assist him with choosing specific communication technique, and the third is a **team leader** that assist in formulating the negotiation strategy and communicate with other components, such as **tactical team members**, **investigators**, **commander**, or **second-in-command officer** (he is on the same level with both teams leaders, and responsible for collecting and dealing with information for the negotiators, as intelligence or legal officers, or media, technical aid and perimeter control offices). (Regini, 2002, Fuselier, 1981) According to other model, the two negotiators are supported by **intelligence officer** responsible for seeks, that organize upcoming information and conduct interviews; **psychologist** (most often) as pre-on-post the scene consultant; and **tactical liaison** that maintain communication with SWAT and commander and keep a log of the events. In case when psychologist is integrated as a team member, even the different basic identities, is recommended all members to be cross-trained.
for any assignment within all four positions, while actual assignments happened on the scene, depending upon the specifics of the hostage takers. (Hatcher, et al., 1998)

2. HOSTAGE NEGOTIATION SPECIFIC STRESSORS AND DEALING

Hostage taking is a high stressful situation, mostly for the negotiator. Except selection and good training, previously familiarity with some topics as specific stressors, how stress works, symptoms that may appear during or long after the incidents, and mostly the ways of coping and dealing with stress, can upgrade the stress management capabilities of the personnel. On the other hand, debriefing sessions are necessary to prevent long term consequences of cumulative effects as PTSD or even suicide, in unsuccessful incidents, mostly when episodes of death or serious injuries have been occurred.

During the incident stress can be resulted from external or internal pressures. As the most dangerous periods are listed: initial period of 15-45 minutes given the panic; surrendering of the hostage takers given the dramatic emotions and possibilities of lack of communication; and moments of tactical assault given the violence to the hostages or possibilities for escalation (Miller, 2005). On the scene ideal conditions of relative freedom in choosing words or enough time for reaction happens to be constrained also by: interference in the process by the command personnel or giving orders for making statements that negotiator disagree with (mostly in case of orders for ending the discussion to use force after long time without peaceful outcome, because of SWAT impatience or lack of understanding, called action imperative (Vecchi, 2005)); efforts to delay of those orders; or believes of SWAT misunderstanding of the negotiator’ extent of involvement that cause additional feelings of anger and hostility toward the police officers, as well. On the other hand, what additionally makes harder main task of the negotiator to remain calm even when others behave emotionally, are: on the scene intense fear of incident unsuccessful ending, sense of denial or anxiety when performing well, tense during initial contact or convincing in order to establish friendly relation with the hostage taker, the need for reassuring the hostages while they face with the threat, hostility and anger that become more intense in case of using alcohol, drugs, or hostage taker irrational or quiet and passive behavior. (Bohl, 1992)

Appropriate responses or coping with stress are very important for losing control prevention on the scene or long term stress problems of fail to deal with dominant feelings as guilt, anger and depression, in case of unsuccessful negotiations. Responses can have positive and negative effects. In general, problem-focused coping strategies are considered to be more functional than emotion-focused one, given they focus on actively addressing the problem, as opposed to dealing with the emotions associated with the problem. So, training needs to be focused on recognizing those strategies and upgrading problem-focused in the team. Therefore, many researchers confirm more frequent use of problem-focused coping within police or military samples than the civilians, especially in SWAT and other high-demanding operational personnel (Dimitrovska, 2015), while special coping profile were not found in UK negotiator officer profile (Grubb, et al., 2015). Accepting what’s happened and that is not only their fault, or rationalizing the outcome, laying the blame on the hostage are healthy approaches, as well analyzing the action can help reintegrating from the experience and make decision to change the strategy or stop serve as a negotiator. On the other hand, blocking painful emotions by maintaining facade of rigid control by suppression, denial or distancing, upgrades irritability and anger that overflow other situations, and by time result in symptoms, as sleep disturbance, cold sweats, intrusive thoughts, flashbacks in scene or voices, anxiety when going to work and str.; and need to be avoided. (Bohl, 1992)
3. THE ROLE OF PSYCHOLOGIST IN HOSTAGE NEGOTIATION

Hostage negotiation teams that include psychologist are rated as more effective, in case of appropriate qualification (Miller, 2005). The role of psychologist in process is specific and complex, and defers in different phases or law enforcement agencies. Possible psychologist positions include consultant, integrated team member, primary negotiator or primary controller. In most cases using psychologist as a negotiator is inadvisable, given is a law enforcement function. Several reasons are listed, as: usual mental illness in hostage takers and their previous negative experience with mental health professionals, inadequate experience in field settings or dealing with street and violent situations in most of psychologists, discomfort in some psychologists with using deceptions that are sometimes necessary, missing information about public safety law enforcement responsibilities and resources, or concern that psychologist will not accept direct facilitation in tactical assault if final resolution requires (Hatcher et al., 1998, Fuselier, 1981). Of course this isn’t case if psychologist has law enforcement rank or is military psychologist. In primary controller, as position ascribed by highest governmental level, unique personal characteristics, loyalty and advanced non-psychological experience is required, while dealing with resentment and ego of military and police ranks caused by responsibility removal and field knowledge of SWAT team tactical possibilities and technological abilities, is needed. (Hatcher et al., 1998)

Similarly to psychotherapy, negotiation process is characterized with constant reassessment of the goals and objectives, in order to increase the probability of success. But from the other hand, traditional concepts of psychological profiles and psychiatric diagnostic are with limited relevance in this case, given their evolving in dynamic behavioral assessment of indicators and personality style, by also accounting for the dynamic context in which they occur. Hostage negotiation psychologists need to be highly trained, to have superior verbal and other abilities and skills as thinking quickly and performing effectively under huge stress, pressure, dynamic and unpredictability. But, clear delineation between operational consultant and health care provider is important. Three factors were found relevant for successful participation of psychologist in the team: mutual acceptance with police officers that means both need to understand their roles and functions, professional credibility and ability to function in field settings (Hatcher, et al., 1998).

3.1. Selection

In the phase of screening and selection of the negotiators and making the team, psychologist role as a part of the selection team is major. Variety of screening techniques was found as mostly used, like psychological tests, self-selection, supervisor recommendations, panel interviews and role plays, which can be used in combination. This process mainly involves aspects like: mental health examination, assessment of personality traits for effective communication, and evaluation of professional knowledge and experience, given that it was found the best negotiator is a combination of experienced police officer and psychologist (Romano, 2004, Van Hasselt, 2008), and necessary motivational level is inevitable. Some author recommend lowest rank and good health, considering the placid temperament needed (Jones, 2000), other mention ranks of best criminal investigators given the non-confrontational approach and interrogation skill, and etc. (Herndon, 2009). Personality traits related with successful hostage negotiation were shown: high emotional stability, extroversion, inner self satisfaction, orientation to freedom (Tatar, 1982), high agreeableness and conciseness, while unique hostage negotiators personality profile was not found (Grubb, et al., 2015); excellent communication skills, ability to adapt in changing environments, capacity for sympathy (Strentz, 2006), determination and success orientation, self-
confidence, assertiveness and decisiveness, ambiguity and frustration tolerance, general, practical and emotional intelligence, logical and abstract thinking, creative problem-solving, cognitive flexibility, abilities for “constructive manipulation”, truthfulness and sincerity, commitment to negotiation approach, and etc. (Miller, 2015).

3.2. Training

In training phase psychologists provide psychological trainings courses for the team on different topics, mostly for enhancing team’ negotiation or communication skills and psychological knowledge for upgrading success in assessment of personality types, risk and threat, aggression potential, mental disorders and medical treatment, suicides, Stockholm Syndrome, human behavior, crises intervention, interpersonal dynamic and relationships, information processing and problem solving techniques, and etc. Psychologists as well participate in the training exercises, given their role in the team or process. Good training is very important and was shown as very useful for successful negotiation team (Van Hasselt, et al., 2006, Mojsilovic & Gavric, 2013, Herndon, 2009), especially for the team leader. Training can be basic, advanced, for team leaders or regular member, or for individual skills maintaining. It also consists of topics related with tactical knowledge for working on the various positions in the team, legal consideration, categories of crises situations, available tactical options, familiarity in how agency tactical teams operate in certain situations (mostly for avoiding miscommunications with tactical team leader, incident commander or other professionals), dealing with stress or manipulative subjects, role of the media, use of third-party intermediaries and other professionals and etc. (Regini, 2002, Baruch & Zarse, 2012).

It can be conducted in some specific ways, as classroom lectures and discussions, conferences, case studies of actual incidents, role playing drills or simulation. Teaching by personal example and verbal instruction by high experienced person was shown as most effective (Jianqing, 2014). As most difficult exercises were shown responses as: no control of the situation, fear of saying wrong thing and getting damages or hostage killed, failed to establish communication, move forward when stuck or don’t know what to say, establishing trust, feeling useless and hopeless, and etc. (Thomas, 2011).

3.3. On-the scene process

During the incident psychologist have several functions as a consultant in the negotiation team. He monitors the process, situation and participants, in order to translate related information and behavior of the hostage taker, negotiator and hostages, and help the team in planning strategy, to negotiator to manage the situation and commander to make decisions. Thereby, consultant role usually means taking part in two or three levels of operational police decision making process (Miller, 2005). On the scene psychologist is oriented on indirect assessment of the potential of violence (that can be predatory or affective (Meloy, 1992)), mental status and eventual psychiatric disorder in hostage taker. He can help arrange for appropriate treatment of mentally ill hostage taker, or even began that treatment during negotiations. Another task is monitoring, assessment and management of negotiator and team stress level, and providing feedback. In case of losing objectivity in exhaustion, psychologist can recommend negotiator’ replacement and help in dealing with bad feelings, or the new one to continue the process. The most important is help of negotiator in assessment and management of different behaviors present during negotiations, working on removing any misperception or problems in order to prevent escalation of the incident, injuries or suicides. Assisting in witness interviews, reviewing other relevant data and information, helping intelligence officers’ in locating and interviewing witnesses by some questions and
recommended directions for further interviews, or helping distress relieve in participants’ relatives, mostly hostages, are also psychologist roles. What distinguish hostage negotiation psychologist from traditional one is its side but active role and the context that is taken in account while making all behavioral assessments. This position means assessment of the crucial interface between the mental state of persons and the situation while assessment and context are both ongoing and continuous. Thereby, one of the most important task is evaluation of hostage taker motivation, assessed behind each communication by determining thoughts within the ongoing context, in order to assess hostage taker next action, possibilities and dynamic of violence, and signs of progress of the negotiation process. As positive signs for the last are: positive changes in communication quality (more frequent and longer verbal contact, less violent speech content, more talking about personal life), increased identification or sympathy for the hostages, getting questions about procedures, consequences or surrendering, longer time without injury to hostages, and str.. While negative signs are: refusal to talk, overtly suicidal behavior, insisting on face-to-face communication or particular person to be brought, notable absence of substantive demands, shameful demands, use of alcohol or drugs (Miller, 2005). Different categories of hostage takers personality as well help in identifying motivation and making appropriate negotiation strategy. So, motivation can be individual (emotional), criminal (instrumental), or socio-political (ideological), while two aspects in personality are relevant for this kind of incidents: normal personality and psychopathology (Jianqing, 2014). Beside the negotiator-hostage taker relationship, team also put accent on the relationship developed between the hostage taker and the hostage, mostly phenomenon called Stockholm syndrome, as important for the negotiation process and which promotion is one of its vital strategies. This psychological processes needs to be understood and recognized on time by the negotiator and the team for appropriate reaction. It is a paradoxical behavior that appears as a response of the captivity, where positive bound between hostage and hostage taker occurs, in which hostage views the hostage taker as a giving life by simply not taking it. It is not a conscious decision or rational choice, but an ego defense mechanism as a response of achieving survival that helps individual to avoid hurt by unpleasant thoughts and feelings. It consists of one or more of the three behaviors: developing positive feeling toward captors in the hostages, developing negative feeling toward the authorities in the hostages, and developing positive feelings toward hostages in hostage takers. For the negotiation standpoint it has positive aspect of protecting hostage life, but negative is unreliability of information coming from the hostage that put cooperation with the hostages for their releasing unclear. But in case of time passage, hostage isolation or abusing, or positive contact between hostage taker and hostages, this syndrome won’t be developed. (De Fabrique, 2007, Fuselier, 1981, 1999)

3.4. After-the-scene phase

In post incidental phase, psychologist role contains in participating in operational and stress debriefing and counseling of the team, or stress management education, mostly in case of incidents with adverse outcome, when dominate emotion are guilt, angry or depression. Psychological interventions are aimed to help the restructuring of event perception, showing them how to use the experience to learn and move forward. Psychological expertise in this phase is invaluable for prevention of negotiators and organizational long-term problems, as PTSD, mood, occupational or marital disturbance. (Miller, 2015)
4. HOSTAGE TAKER NEGOTIATION APPROACH

As for other psychological knowledge, it was found that crises situations can’t be managed with the usual problem solving methods. In crises person’s coping mechanisms on rational level fail, so dealing with the situation is on emotional or affective level. Main purpose of the intervention is restoring coping ability in order problem solving to be receptive, by: defusing intense emotions, establishing communication and developing rapport, buying time and collecting information (ascertain lethality or potential harm and identifying precipitating event of the person) for developing optimal negotiation or intervention strategies. Problem solving is a multistep behavioral process, in which negotiator helps the person in crises to explore alternatives and concrete the solution, opposite on focusing to the problem, failures, or the past. Adapted for crises, contains steps as: defining a problem, brainstorming possible solutions, eliminating unacceptable solutions, choosing a solution that both find acceptable, planning the implementation and carrying out of the plan. As usually mentioned is relationship-building based Behavioral Change Stairway Model, developed by FBI that consists of four stages: active listening, empathy, rapport, influence and behavioral change. (Vecchi, et al., 2005) Problem solving approaches and teachings are one of the main topics consisted in training, for which next shortly explained topics are previously important.

4.1. Hostage takers types and negotiation approach

Researchers identified types of hostage takers, as: criminals, mentally ill (schizophrenic, paranoid, manic-depressed, avoidant-depended, antisocial, or borderline), terrorists (that can be politically or religiously motivated), domestic violence, prisoners or combination (Fuselier, 1981, Thomas, 2011, Miller, 2005, Jones, 2000), which recognizing is important for identifying hostage taker motives, assessing behavior and making appropriate strategy. But these need to be used in behavioral profiling, not for diagnostic labeling.

In paranoid schizophrenic’s thinking is disturbed, with hallucinations and delusions as primary symptoms, so they take hostages to realize some “master plan” or obey “orders” form some “special persons”. Best approach is avoiding confrontation with their symptoms, to be careful with lying or tricking, while verbally accepting their statement as true for them. In manic-depressive case, the speech is slow, centered on “sins” he committed, with delusional believes and guilt, which need to be gently interrupted with convincing him to talk about interests, hobbies or anything positive related to his self-worth. Attentiveness on suicidal ideation is needed, providing understanding and support, while continually reassurance of the self-worth, but avoiding telling them that “things are not that bad”. For antisocial or psychopathic hostage takers absence of consciousness, guilt or ability to learn from the past experiences is characteristic, besides of selfishness and immediate satisfaction that predominantly are present. Manipulations for getting material gains for themselves and physical pleasure are their pursuits. Negotiators need to be careful with using tricks, use frequent stimulations and avoid promises that themselves cannot deliver. Problem solving strategy approach was shown best, while touch-feeling empathy useless. Avoidant and dependent personality type usually are combined, so avoidant pattern involve social inhibition, feeling of inadequacy and hypersensitivity to critics, while dependent personality contains submissive and clinging behavior, given the high need of care and guidance. Usually hostage taking is aimed to convince rejecting person (that he is connected) to take back. Negotiator need to provide solid supportive approach, playing role of new temporary parental figure, letting hostage taker find resolution that not make feel him failed again. Initial idea for peaceful outcome and everything that positive happen need to seem like his idea with negotiator support. Borderline personality is a pattern of instability in personal
relationships, fragile self image, vengeful anger and self-damaging impulsiveness. The hostage situation is most likely relationship based on real or imaginary betrayal, where anger is key motivating emotion. They make no demands, wanting just their victims to suffer, or they are unreasonable. Using the relationship factor of rapport-building approach by accent on empathy and other active listening techniques is advantage, while being careful with missing trust or let venting escalate.

_Criminals_ usually take hostages in case they are caught in committing crime, and their motive is to escape. After mental status check, negotiating process of reality oriented questions is recommended, helping them recognize the situation facts and convincing to accept physical safety in return of hostage release. Need to be in mind their frequent contact with the law and experience with the police. _Prisoners_ happen to take hostages in case of riot, usually law enforcement, visitor or some authority, to get more power on account of media. Rapid police action is preferred before the leader emerges. In the two types, personality is likely to be antisocial or inadequate and immature. Advantage is the lowest probability to harm hostage, given their primary rational self-interest acting or instability that gives hostages more chances to escape; while disadvantage is probability of violence, intentionally or not depending on their prior criminal record or personality type. _Terrorists_ totally differ from other types. Their behavior is highly structured and rational, incidents are usually planed for mounts, and dangerous is given their belief system is such they are committed to a cause. They take hostages for obtaining publicity in order to provide their demands. Although motives defer, methods are quite similar to criminals or mafia. Personality profile defers in leaders and followers. Negotiator need to convince them that they successfully spread their message, their demands have been heard, and killing hostage can just discredit them in the public eyes.

**4.2. Communication skills**

Communication skills are in the nature of the hostage negotiation process, on which effectiveness training is mostly emphasized, even individual skills are just one of important factors in the intertwined dynamic composition. Communication strategies as negotiation fundament was later revealed in hostage negotiation technique development. That means focusing on the spoken words, style, intensity and context of communication, and then applying it effectively in negotiator and situation approach. Taylor (2002) cylindrical model explained the interrelationship among communication behaviors as crucial in crises. Some psychotherapeutic techniques were shown successful for this process, integrated in active listening skills, as fundamental for crises intervention. It can be defined as focusing in order to provide information from the subject, by understanding its relevance to the context that means orieted to ideas rather than facts, avoiding distraction by emotional statements, and trying to respond to any situation that may arise. Set of skills contains: emotion labeling, paraphrasing, reflecting, minimal encourages, silence and pauses, “I” messages, open-ended questions and etc. (Miller, 2005, Thomas, 2011, Jianqing, 2014).

_Paraphrasing_ means rephrasing the point of the hostage taker statement (excluding the emotion), in order to test the understanding of the communication, providing opportunity for sub-questions from both sides. _Reflecting/mirroring_ means repeating last words or main idea of hostage taker’ message in a form of a question, what request more input without asking for it. _Open-ended questions_ stimulate the subject to talk, and cannot be answered with a simple yes or no. _Minimal encourages_ means short words or phrases paying attention to something during the hostage taker speech, letting him know that the negotiator is listening and encourage him keep talking. _“I” messages_ may help in defusing intense emotions, by refocusing the hostage taker during verbal attacks, demands or manipulations. Except for
buying time, silence and pauses can be used strategically, as: encouraging the subject to keep talking, emphasizing the negotiator point if silence follows his statement, encourage hostage taker elaboration of the point if follows his statement. Careful use is need, given that too much silence can make hostage taker think he is ignored or forgotten. Empathy statements allow the negotiator to view the situation from the hostage taker point of view. Empathy is used in order to avoid some errors, like misunderstanding of mind-set and other side interests, inappropriate value of their arguments or using ineffective communication skills (Greenstone, 2007). But, deescalate the situation is firstly needed, or more precisely can only be used when the stage is set for meaningful dialogue. Depending on the extent of entering the statement in meaning and feelings below the surface information and feelings, three stages of empathy statements are specified: high, medium and low (Kulis, 1991). To gain empathy and sense of trust, self-exposure technique is used, meaning negotiator expose himself to the hostage taker with similar and related ideas and experiences as an average person, but in appropriate moment and way, in order to reduce the risk in hostages.

Except for screening and selection, role playing is basic training technique for using and practicing active listening skills under circumstances designed and manipulated to closely approximate real situations, which performance was shown as best predictor for it under real conditions. It takes various forms and can be brief or lengthy in format (one or several minutes to several hour), contained of scenarios that can be based on actual incidents that have occurred or designed in anticipation of situations likely to happen in the future. Personnel with extensive previous experience are useful to be as much possible implemented in scenario content and development, while using actors or trained persons in various scenario roles was also shown beneficial. Direct instructions to the needed skills, feedback (as positive as possible, mostly immediately after the scenario), modeling for demonstrating, and video or audio taping (for self-analyses and evaluations), were shown as important principles for improving and shaping targeted skills in appropriate way. (Van Hasselt & Romano, 2004, Vecchi et al., 2005)

**5. CONCLUSION**

Negotiation was found as most effective approach for resolving hostage taking situations, developed in law enforcement in the past decade. Appropriate training, collaborative relationship between psychologists and law enforcement personnel is crucial in handling, given the high risk operational aspects. Except tactical, training is mostly oriented to upgrading psychological skills in assessment, communication, problem solving and stress management, as well as psychological knowledge in personality, mental illness, motivation and human behavior. That implies knowledge from many psychological traditional branches, but here necessary upgraded in behavioral approach, given the accent of the context in which assessment need to be done. Beside the psychological knowledge that was found implemented in the structure of the hostage negotiation process, psychologist was found useful to be integrated in the team in several possible roles, mostly as a consultant. Anyway, psychologist role was found complex, demanding good verbal and field abilities, for which appropriate training is necessary. Greater cooperation between police and researches is recommended for future crises negotiation effectiveness increasing.

**LITERATURE**

Abstract: Crisis situations represent the constant of a modern society. The severity of the consequences and the multi-dimensionality, pose crisis situations to the priority of considering the security of modern societies. Prevention and adequate response to emerging crisis situations require the engagement of all the resources of the society. The implications of crisis situations are indicative of the individual's level to the whole society. Crisis management represents the response of the society to crisis situations, based on the systematic application of knowledge and management. The risk of modern society has taken on such a situation, that the safety of society is questionable. This paper elaborate about crisis management and its dimensions that are relevant from the aspect of crisis management and crisis situations. The importance of crisis management from the aspect of the security of society was emphasized. The range of measures and tools available to crisis management is the basis for decision makers to reduce the vulnerability of society.

Key words: crisis management, social safety, social risk, danger

1. INTRODUCTION

Whether the violation of a man's secure environment generates as an individual or social entity, demands for engaging extraordinary forces and resources to protect his own aspirations and needs? The answer is, of course, yes. The realization of man's basic living needs is the basic requirement for his existence. By disturbing the possibility of realizing these needs, a situation deviates from the “normal”. The new situation, in which a person has to spend time and resources, changes the circumstances in which he lives and works, for the purpose of restoring him to a regular state, is a crisis. The essence of the crisis is that the normal process in a given social system is disturbed. New conditions occur in many forms and types. The phenomenon of the crisis, in the context of human security, has become a subject of research by a large number of scientists. Researchers of various types of crises have identified a whole range of factors that can cause disorders in meeting human needs or in the functioning of society. This multiplicity of factors can be classified according to different levels of the system. Although the causes of the crisis are different from one case to another, we can divide them into external and internal [1]. Most crises researchers agree that today's crisis cannot be explained by specifying a few easily recognizable factors.
2. CONCEPT OF CRISIS AND SOCIAL SECURITY

Most of the crises come from a combination of individual errors, organizational failures and environmental impacts. Since different crises follow different critical paths, crisis researchers need a methodology that allows them to reconstruct and compare each crisis process. A “new” theoretical perspective is necessary - a developing field of study of the complexity and renewed interest in evolutionary perspectives to link different factors that work at different levels of analysis. Such an analysis can help us in understanding the combination of human error, organizational pathology, and central imperatives in processes that cause a system disorder, but it does not tell us why and where only some tensions, problems and worsening circumstances are defined by the term crises and disasters. We need to understand that the escalating crisis process intertwines with political processes and social exclusion processes [3].

In order to understand this process, findings from the investigation of political defeats and failure can be useful. They see that labels such as “fiasco” and “ruin” are a product of social interaction between key players in the political and social arena. The media play a key, controversial and difficult role in this process. In it, what is behind a disaster for others is a golden opportunity and opportunity.

2.2. The etiology of the crisis

A personal, national or international situation in which there is a threat of priority values, interests or goals is a crisis. This attitude, unambiguously, points to the direction and shape of the negative operation of situations at different levels, to the human safe environment. Thus, the crisis is one particular state of the changed circumstances, in which the individual's individual and social needs for existence are seriously underdeveloped. However, a crisis should not be explicitly understood as a negative trend, yet at the same time it can represent a very serious chance.

Word crisis is probably one of the most commonly used words in everyday speech, politics, journalism and social conversation. It is also used in describing a personal or private situation, but much more often to describe a situation in which society, as a whole or certain organizations, and systems within it are located. However, despite the frequent use, there is no clear and unambiguous conceptual content of the term of the crisis, there are already many and often different interpretations. [2]

Etymologically, the word crisis comes from the Greek language. In ancient Greece, the crisis (κριςις) meant “judgment” or “decision”. In the Mandarin language, the symbol of the crisis implies characters that signify “danger” and “opportunity”, which implies that the crisis is equally both good and bad [10]. Generally speaking, the crisis implies any sudden break until then of continuous development. In the narrower sense, this is a situation that indicates a shift from some positive development to the negative, or peak of dangerous development. The crisis signifies “a particular situation in the development of a phenomenon; the reversal of things in relation to the current flow”.

Crisis study is important for practical crisis management, and on the other hand it is extremely interesting for the scientific study and development of crisis theories as well as the implications for security.

In defining the crisis, theorists developed different views on the crisis over time. They consider it to be a significant element of surprise and an element of time constraint for performing an action, and that both elements depend on the characteristics of individual cases. Both represent obstacles to decision-making. Some experts add an element of
uncertainty in crisis situations. All this affects those who are dealing with the crisis or returning the system to a safe environment.

2.3. Social conditioning of the crisis

The replacement of a social, political or economic order is as old as the social community itself. Human, individual and social needs grow with time and degree of development. In the initial stage of the development of man as an individual, the needs were much simpler than at the time of the formation of the first groups and societies or today. The man fully fulfills his needs in society, so that the impact of social crises is equally important for man as well as the impact of individual crises. In the domain of social crises, individuals in power play an unusually important role both individually and in organized groups (parties, parties, associations). The fact that the crises are not evil luck or a godly punishment, indicate that the causes are real-life crises, everywhere around man, and that the disruption that occurs in social systems can not be prevented [5]. It is precisely in this field that the authorities are in the forefront, whose have been given the mandate to protect the “ordinary” man from all the miseries. They, therefore, determine the onset of the crisis, its end, the strength and the means to fight the crisis, as well as the finances and ways of fighting it. Linear reasoning, which suggests that major events must have great consequences, has allowed a different approach and understanding of the crisis, which underlines the increasingly complex consequences. Finally crises are the result of multiple and multi-dimensional causes that together lead to the emergence of threats with a devastating potential.

This kind of understanding has the object of opposing practices, as it opposes the traditional logic of “triggers and causes” lying in the background of events. The belief that some set of factors causes a crisis is stale. After determining the cause, a situation arises to make the difference between internal and external factors. However, it is more certain and more accurate to talk about more intense processes that undermine the power of the social system to deal with disorders. The point is that the cause of the crisis can arise for any reason, but the cause of the crisis is the inability of the system to react and overcome disorders.

2.4. The impact of modern trends in the crisis on the social security

The classic crisis was a devastating event that caused death, the infliction of serious personal injury or material damage. This was a clearly defined event, with a clear beginning and end, the cause of the destruction and the victims. Such events continue to occur and continue to cause damage and insecurity. But the causes of these events are much more comprehensible today. Classical crises have become routine crises that fall within the boundaries of the acceptable risk of modern society. They fall into the area of manageable crises, from the aspect of knowing the characteristics of the causes of initial events.

Ulrich Beck, a well-known theoretician, characterized contemporary society as a risk society in which more than the threat of destruction is dominated by an obscure fear of compromising security. Therefore, the modern crisis is quite different from the events that were commonly studied under the onset of the crisis. The contemporary crisis has endemic properties that indicate that a modern crisis is a logical correlate of increasingly complex systems that cannot follow security requirements for technological, financial or political reasons. The modern crisis is complex in its nature: it consists of new combinations of known crises that refer to solutions, which, however, are shown exactly as sources of escalation. Moreover, modern crises tend to self-immolation; the process turns into a vicious circle, which is fed with insecurity and uncertainty in terms of causes and causal chains. There is no return to normal, as future crises again appear in changed forms. A modern crisis is also the
result of perceiving society's values and the way in which perceptions of threats are perceived. It is also a logical consequence of the dominant trends that have shaped and continue to shape contemporary society [15].

In contemporary theory there are several phenomena that define the impact of the crisis on the security of society, such as: trans-nationalization, media society, abandonment of state authority and technological development.

The problem is present in modern societies, high-quality data collection and environmental information integrated into a coherent and useful story. The problem is two-way. Namely, the first part of the problem is to agree on the interpretation of information. People of different profiles and in different functions interpret the information in different ways, so that the decision-making bodies are ineffective to that consensus. Many social organizations lack the ability to properly evaluate, or a general framework that specifies weaknesses, and prescribes how to recognize them, which is politicized in a small number of cases. The second part of the problem is the absence of mechanisms within the authorities that facilitate the rapid identification of the danger [9].

3. ENDANGERING THE SOCIAL SECURITY

The diversity of social, political and economic factors in the new social context, has shadowed the primary social character of security, due to the inevitability of the appearance of its technical aspect. This fact points to the multidimensional security perception that has arisen precisely from the need to interpret that security represents not only the presumption of fulfillment of basic life functions and the survival and functioning of an individual or group.

New approaches to the observation of security phenomena indicate the need for security behaviors in which individuals and groups' security positions are developed and maintained in order to develop awareness of their necessity.

3.1. Relation of human and social security

Understanding security is not possible without the analysis and understanding of conflicts in the original human community. As a vulnerable individual, a man quickly noticed the benefits of association, which led to the emergence of the first communities. The association was based on a blood relationship or the need to protect more individuals from dangers. Conflicts between these communities were created in order to achieve fundamental existential needs, food, protection of the tribe, and similar. This fact speaks of the existence of security before formal association in the state formation [15]. By acquiring certain “reserves”, primarily in food and other material things, people began to create territorial communities, with the aim of defending against danger, but also binding, basic industries, livestock and farming, for one territory. It was inevitable, for various reasons, that a community had more land or livestock, which was a sufficient reason for the development of inequality and the emergence of conflicts. The conflicts were aimed at the violent seizure of material things but also of the territory, accompanied by a large number of victims and material destruction. Stronger communities conquered members of the weak and transformed them into their slaves [14]. A new reality brought about by a combination of styles, conscious and unconscious moves and events causes the emergence and creation of social relationships. To conclude that social relationships were created in order to meet social needs. Social relations, now as a process, have a form of connecting people in which they enter into certain relationships. Social relations are divided into voluntary and silent, according to whether they are caused by people's will or independently, according to the
character of the dynamics of the processes of cooperation and conflict, according to the effects on the processes of creation and destruction [12]. From this it can be concluded that social processes are multidimensional and complex processes. From such processes, social creations are created, with the same character. Since there is a necessary, indispensable necessity, which enables a social environment without danger to the value of society, the conclusion is that security is a complicated social phenomenon. And on the basis of this fact, various security systems are developed as social creations.

3.2. The etiology of social security from challenges to threats

In various attempts to define the content of the concept of security, the syntagm has generated challenges, risks and threats. The justification of the emergence of such a syntagm has the roots of complexity and multidimensionality of security as a phenomenon [15]. Efforts to identify all the causes that lead to the danger of society's value have led to the emergence of security challenges. For the reason, because the causes of the emergence of danger have a direct connection with the occurrence of threats to the same values, which are found in economic, ecological, political and other phenomena. Correlation between challenges and threats to the values of society exists, with challenges being a more general term, which refers to all phenomena, whether they are endangering or not. The perception of emerging challenges is the moment that determines whether a phenomenon will have an epitome of endangerment, depending on the factors, causes and possible effects. Therefore, the challenge as a phenomenon is a value-neutral term, until the moment of establishing correlations between the phenomena of their influence on the values of the society that are subject to security consideration.

Since security challenges directly depend on the nature and characteristics of phenomena that determine and express them, it can be concluded that the characteristics and manner of action of the original phenomena determine the character of the challenges of society's safety. The forms and ways of endangering society are influenced by two groups of factors: the first are those who generate, enable and develop them, and others are those that prevent, limit and disable them [9]. The fact is that these groups of actors behave differently on the phenomena, or indicate that the phenomenon can have a positive and negative character. A positive character implies the absence of danger, and its negative presence is negative.

This status, with elements of uncertainty, indicates the possibility that the outcome of the event is positive or negative in the given conditions. Such a possibility is based on uncertainty, and to which we can make a certain impact, is called a risk. From the above, it can be seen that the risk has elements that point to the course of events aimed at keeping or increasing security, but at the same time to the lack of security or the existence of threats. Therefore, the risk can not be used only in marking the negative context of security phenomena. In this context, the risk can be determined as a possibility, or a certain degree of probability of occurrence of an event with adverse consequences. If that risk has an unacceptable character for the projected level of safety in relation to the observed phenomena, it is a characteristic of a phenomenon that gets the status of a threat to the value of the society. So the threat is the same phenomenon that posed a challenge, a value-neutral phenomenon, which now has the capacity to exhibit negative effects on society's value, characterized by an unacceptable risk. The threat can, in the broadest sense, be understood as the kind of pressure from the position of force, which the opposite party wants to intimidate and exhaust, in order to force certain concessions [16]. So the relation, between challenges, risks and threats, has its foundation in the triangle that make up, the conditions that represent concrete contrasts of the intent, the intentions of risk and force determined in order to realize the threat.
3.3. Social security through prism of social risk

The last decade and several years of this century is the time of intense progress and progress in the technical, technological, economic and demographic sense. Such progress has led many theorists and practitioners to the path of suspicion, and the question of whether such progress is all positive, what its effects are and whether it makes sense. The reason for this is realistic and is based on the fact that along with progress, the dangers, which threaten the destruction of man and the planet, increase and develop. The world is sharply divided into two segments: the subject (man) and the object (nature, society, technique). The philosophical postulates of the unity of man and nature have been forgotten and have lost meaning. The man sought to fully master and sincerely exploit nature, the environment, and the other man, with the intention of doing so with the universe. In addition to other forces, science itself partly served as a means of instrumentalizing the mind. A special contribution was given by the ideology of extreme consumption that increased indifference to both nature and other people. Therefore, it is only certain that the future is “more uncertain than ever before”[3]. This kind of development and advancement of human society shows that it is increasingly vulnerable. Vulnerability is reflected on various examples: an increasing number of devastating natural phenomena, poverty, the gap between the rich and the poor, the collapse of state economies, etc. Hence, man's activity contributes and is the main driver of the emergence and development of increasing dangers for his own existence. The great question mark is on the current way and directions of the development of human society, the entire social function of science and technology and imposed patterns of culture.

4. CONCLUSION

The problems of security of modern society, are no longer only local character, related to national states. The spatial and temporal dimension of modern threats has become negligible, since any of these hazards do not depend on the physical boundaries of the states, but equally endangers both the rich and the poor. The difference creates only the existence of the capacity to protect or prevent the negative effect. The consequences on people, material goods and the environment are such that they have long-term effects, affect a large number of actors, create fear and panic, disturb the normal functioning of the society. These conditions indicate that modern society is in a special state, uncertainty and an unstable environment, which is called a crisis. However, the size and in general recognition of the existence of a crisis depends on the authorities, i.e. their perception of immediate threat to the fundamental values of a society that requires an urgent response in the conditions of uncertainty and uncertainty, but often also the interest in perceiving an event as a crisis. Crisis events pose a serious challenge for bearers of power, a serious security problem for individuals and society. Modern tendencies towards universal security, conceived on globalization, show the desired results, but only for those with whose intersections they coincide. For countries that want to preserve their national identity but also to exist in a just international community, the current development of globalization is a source of risk. The risk society has become a new security paradigm, whose main characteristic is uncertainty. The risk is on one side of the chance, and on the other at the same time a problem. The perception of both sides is conditioned by the inters and possibilities of the individual and the community. The effect of a risky phenomenon depends on the perception of the phenomenon, by the effects, time and space. The social community will always remain an important and powerful factor in social security, whether it is formally or informally organized. This means that the importance of the government authority also retains great importance in the perception of the crisis, identification of causes and effects, or in response to it.
LITERATURE
STATE, NATION AND INTERNATIONAL SECURITY

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Abstract: The article analyzes the problem of internal and International security in relation to the functions and responsibilities of the State. It takes into account the “ethnicities” present within the State in relation to the guarantees provided for in the domestic legislation and international law in view of a greater standard of security. The relations between rights of the State and fundamental human rights and freedoms, mostly at “regional” level are analyzed in reason of the exigencies of individual and collective security. Furthermore, the effects on the security caused by mass migrations analyzed in their causes and their terroristic degenerations, with particular attention to the American foreign policy are analyzed.

Keywords: State, nation, national security, international security, human rights, rights of States, mass migration, terrorism.

1. INTRODUCTION

The research calls for a preliminary assessment concerning the identity between State and Nation or the different relationships between State and nationalities living within it; one should also underline the tight link between protection of State’s rights and national and international security, as well as fundamental human rights and international security.

Basically the issue of international and national security has a regional dimension, also with specific regard to the unexpected and on-going phenomenon of mass migration that is due - if not wanted - by the destabilizing foreign affairs policy of certain western States.

One should analyze and eliminate the root causes of the new phenomenon of mass migration in order to neutralize one of the most dangerous present threats to national and international security, also severely affected by related and always more widespread phenomenon of international terrorism.

2. STATE AND NATION. CITIZENSHIP AND NATIONALITY

The notions of State and Nation may be intended even in equivalent content terms. This, due to a common political, legal and sociological terminology present in the French tradition which indifferently indicates the State with the notion of Nation and, consequently, in equivalent way citizenship and nationality. If any difference in terms of content had to be introduced between the two notions, the State is the unitary political organization regardless of the national uniqueness or homogeneity and thus, may include within the exercise of the
sovereignty even more nationalities. The clearest example may is represented by the constitution of Bolivia which refers to the multinational State. Nevertheless, the notion of Nation assumes a different connotation of content in the sense, if required pre-legal or extralegal or, in any way, independent form the relative organizing context (in the legal sense of the meaning), and thus Nation in proper political terms, in the sense of ethnic, historical and cultural homogeneity of it components. The concept of Nation, in the general context of political and legal organization of the relative State, assumes proper autonomous legal profiles if intended as an minority within the State, protected by the guarantees and clauses provided for by the constitution of the State and by general and conventional international law (the latter composed by both bilateral and multilateral agreements).

3. SECURITY, STATE AND NATION

Under the mentioned profile, the problem involving the security concerns both the Nation intended as State and the Nation intended as part of the State.
Under the first aspect, the analyze may be conducted jointly and has to be confronted with public international law under the aspect of the inter-state relations. Under the second aspect, the problem of the security of the State falls within the responsibility of the latter but well may also fall within the larger context of the International relations, especially in the cases where a particular nationality present in the State, has a proper State of reference on the level of language, culture, traditions, etc. The emblematic example, to this regard, may be the one of Montenegro, Macedonia, Kosovo, Serbia and Greece in which socio-political context already exist consistent Albanian nationalities; hence, it is used to say that the Republic of Albania is a State which confines along all its terrestrial borders, with Albanians!

The problem of how nationality concerns in terms of security of the State finds its most emblematic reference point in the Republic of Bosnia and Herzegovina within which live, as already known, different nationalities with particular differences between them.


In the prospective herein indicated need to be underlined a preliminary ascertainment and that is the increasingly accentuated tendency of an overcoming of the State and consequently of the state sovereignty.
Overcoming of the idea of State and state sovereignty, as traditionally intended, that should better correspond to the exigency of security in the name of an easier and almost, natural, cooperation at several levels, not necessarily inter-state, in the larger context of a globalization, indicative of a process no longer limitable or revocable.
This is one of the most specific points which deserve adequate detailed analyze in view of the verification of the assumption considering that, at phenomena level, a decrease of

40 See A. Sinagra, Economia, democrazia, identità nazionale e sicurezza internazionale, in KorEuropa, 8, 2016.
sovereignty of the State (if not a denial of the traditional European leviathan) has not proved to contribute to better satisfy the exigencies of security at national level or at international one.

The phenomena emergencies describe here seem to conduct to a different ascertainment and conclusion, in the meaning that it has been registered an increasing conflict and, thus, a greater deficit of security in international relations in the moment where over the sovereign political organization of the unitary State the idea of the nationalities has prevailed.

To better clarify the position, it is easy to note how the process of globalization has, indeed, conducted to opposite result of those imagined or expected, if only we consider that just for effect of the globalization an uncontrolled number of local self-determination claims have emerged; that is, the arise of self-determination claims on linguistic, cultural, tradition grounds. All this in absence of a sole and recognized point of reference of exclusive general political powers including the different local self-determination demands which may introduce unitary disciplines in several sectors of the common social life.

Even under this point of view, the State is represented an a social and political necessity because only the government of the State could guarantee an organized social life and provide for the individual and collective exigencies of the social realities living within it. It is ignored, obviously, any consideration on the inexistence of the so-called global governance which, as such, should assume the disappear of the international Community of States, the disappear of the international law due to the loss of the necessary subjects of reference, and the disappear of the same concept of State and nationality.

Only within the State, or better, only the State as such may guarantee to the individuals and the collectivities living inside the State, those rights recognized by international law. Only the State as such possesses the instruments of political and administrative organization useful to the objective, which is the one to fulfill International requirements, not already provided for ex-ante within the domestic legal order of the State. The foregoing applies even, and specifically, for what concerns the recognition and the effective protection of fundamental human rights and freedoms sanctioned by general and/or conventional international law. This will be analyzed below.

So, the State, for its way of being and for its functional responsibilities, has to be considered an instrument of guarantee of political and social order and therefore in terms of security at domestic and international level.

5. STATE AND SECURITY. THE RIGHTS OF THE STATE. THE FUNDAMENTAL RIGHTS AND FREEDOMS

The State, therefore, as it is called to fully carry out its responsibilities even at international level, in order to contribute to the maintenance of internal and international security – even, and mostly at international regional level -, in the same way it has to be respected in relation to his rights as an international legal person; rights that are addressed as necessary prerequisites for the full exercise of proper internal and international responsibilities.

To the State has to be guaranteed the full sovereignty, especially in terms of respect for its domestic jurisdiction (differently called reserved dominion), its autonomy in the field of treatment of foreigners in compliance with the relative international legislation, the full and autonomous enjoyment of proper natural resources, the prohibition of interference of anyone in respect of fundamental human rights and freedoms (except for the exclusive cases of grave emergencies), the general prohibition of aggression from other

States and, before that, its full political independence even in terms of monetary policy, and its territorial integrity, beside the general respect of the principle of legal equality in order to guarantee the equal position in the general context of the international relations with other States.

In the situation described supra, it is reasonable to believe that it could be better achieved not only the security of every single State but the security of the generality of States, both mono-ethnic and multi-ethnic, through the respect for the rights and freedoms of ethnic minorities stably and historically living within the territory and in the context of the political organization of the State.

6. STATE AND SECURITY AT REGIONAL LEVEL

The above acquires a greater signification if the general problem of the International security concerns regional levels where the prevailing aspect of border-States, and thus in frequent relations between them, might determine situation of closer and more incisive collaboration, as well as situation of greater and acute conflicts.

This is the case of the situation in the Eastern Europe with regard to the so-called Ukrainian crisis where, beside the grave external interferences that conducted to a fragrant coup d’état favored and backed from the so-called capitalistic occidental democracies, and therefore in violation of any minimal measure of political independence of the State and of the fields falling in the domestic jurisdiction, determined conflict situations, even bloody, have occurred in Ukraine between different nationalities.

During this crisis intervened or were involved third States such as, among others, at regional level, Poland, Germany, Romania, Moldavia and, mostly, Russian Federation.

What happened in relation to Ukraine should make clear how any attention should be directed to different regional geographical realities with the aim to prevent situations that might compromise, as so far and still verified, the security of States and relative regionally involved populations.

The international cooperation between States, thus, for the purposes of the maintenance of the security of everyone and all of them, should assume a specific accentuation, again, at regional level.

A general auspice of international cooperation among all the States finalized to the guarantee of a minimum standard of security for everyone and all of them, is destined to remain a mere aspiration unable to achieve effective results in terms of general international security.

The considerations before mentioned with regard to the geographical region including Ukraine and other States of Eastern Europe up to the Russian Federation, correspond with what happened and still happens in the southern region and the North-African area from Algeria to Egypt. Even in these two regions, geographically and politically talking, have been registered and still do, violations of the sovereignty of the involved States, pushed to belligerent manifest aggressions aiming the grabbing of natural resources of this area, that is a manifest violation of the principle of the domestic jurisdiction under forms of inadmissible interferences in the internal affairs of the State pushed to real and clear armed aggressions; in the same way, in the two mentioned regions has been registered not only a conflict of nationalities but a more incisive and less governable conflict of opposite religious groups that traditionally ignore the typical distinction between politics and religion and between State and religion, that constitute an historical conquest of the occidental culture.

Even for the reasons above mentioned, emerge that the problem of individual and collective security has to be firstly addressed at regional level.
6. SECURITY AND GUARANTEE FOR FUNDAMENTAL HUMAN RIGHTS AND FREEDOMS

A specific reference deserves the recognition and guarantee of fundamental human rights and freedoms, as mentioned supra. But the recognition and the guarantee at international level of these fundamental human rights and freedoms should necessarily confront with the economic, political, religious, historical, cultural and ethnical diversities of every State; that means in a certain sense an attribution of the problem to the domestic jurisdiction of the single State.

Domestic jurisdiction that, anyway, even with no intention to propose any ranking of higher or lower worthiness of recognition and guarantee of fundamental human rights and freedoms, is unable to attract in itself that minimal and irrevocable standard of fundamental human rights and freedoms that should disregard from different political (in the sense of internal political organization), historical, traditional, cultural and religious ways of being of every considered single State. It is referred specifically to the right to life, prohibition of torture, arbitral privation of personal freedom or the non-recognition of rights of children as sanctioned by the UN Convention on the rights of Child, adopted in New York on 20th of November, 1989.

Fundamental human rights and freedoms that, to be effectively guaranteed and outside any liberalistic view of economic or political nature, imply the full satisfaction of both, economic and social, rights.

Without the preliminary and full satisfaction and realization of these rights, the civil and political rights would be reduced in a formal announcement free of any effective content of guarantee.

Even under the mentioned prospective may be grounded a credible result of collective and individual security, for the individuals and for the States where they live.

8. THE INVIOLABILITY OF THE BORDERS AND THE EXERCISE OF PUBLIC POWERS WITHIN THE STATE IN RELATION TO INDIVIDUAL AND COLLECTIVE SECURITY EXIGENCEYS

The issue of security requires not only the respect for precise norms of international law, ruling international relations between the States above mentioned, but require also the inviolability of the borders which is fundamentally different from the right of the State to its territorial integrity.

But a minimum and necessary quantity of individual and collective security requires even a correct exercise of public powers within the State, and this not only with regard to a correct administration of the public good, but with regard also to a credible system of organization of the judiciary in relation to which – mostly – is measured the correct balance between two opposite principles: individual rights to freedom and the exercise of public powers in the field of personal freedom.

9. SECURITY AND MASS MIGRATION

It is worth adding that exigencies of individual and collective security should now deal with the new and, in many ways, devastating phenomenon of mass migration. This is a contrast between two apparently contrary exigencies for whom is required a point of balance on the assumption of their legitimacy and validity. This is the exigency of the public order and the
internal security of the State, whose validity and legitimacy is not questionable, that might contrast with a pretended obligation for the State to permit the unlimited and uncontrolled entrance of foreigners within its territory.

The contrast seems to be just apparent, if not evoked in a instrumental way. There is no international norm, of general or conventional nature (obviously in relation to multilateral Conventions) that might oblige any State to an uncontrolled and generalized acceptance of anyone who intends to enter in its national territory.

Norms of international law concerning the treatment of foreigners by the State are not evocable with regard to the phenomenon of mass migration which fall not only out of any current disposition of international law but constitute maybe the gravest damage for the exigencies of internal security of the State with unavoidable reflections in terms of security in the context of international relations.

With regard to this phenomenon of mass migration certainly non ascribable for their purposes to any exigency of International protection at political plan, it is worth to mention that this agitation of the internal public order of the State comes to mind for the unavoidable incompatibility and “religious” contrasts; for the social and economic disorder that these migrations provoke and that could never be justified in an desirable (from some) multiculturalism, provoking them, to the contrary, situations of diffused miscegenation that nothing has to do with the multiculturalism and with purposes of impossible integration rejected by the immigrants themselves.

It follows, therefore, at the plan of collective and individual security and the ethnic alteration provoked by these mass migrations, unavoidable consequences of economic and social nature originated from the progressive diminution of salaries for the citizens of the State and the progressive reduction of social protection instruments to the detriment of the citizens.

To remain in the field of the security, it is worth to underline that the mass migration phenomenon inevitably conducts to situations difficultly governable because impossibly attributable to relations – legally disciplined even at international level – between the State and minorities or different ethnicities living within its territory.

10. CAUSES OF MASS MIGRATIONS

If this situation is intentionally pre-ordered and favors the interests of the International finance, of capitalistic groups aiming the monetary speculation or favors the interest of famous corporations aiming the acquisition of always bigger markets, at costs of work always lower and at social protection always reduced to their total disappear, this is a different problem from the one of the legal analyze on the State and the general problem of security.

It is a political problem that, to remain in the field of security and for the reasons already mentioned, requires maximum attention in the analyze of the reasons of the migration phenomenon and of the actors that earn profit in geopolitical and economic terms.

Certainly, and at the conclusion of the reasons that have provoked and still provoke these ungovernable phenomena of mass migration that compromise in a very grave manner the international and national security, it is worth mentioning that among these causes the one who holds greater responsibility is the conscious foreign policy of even armed (direct or

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45 See F. FERRAROTTI, Qualche commento sull’effetto dei movimenti migratori sulla società europea, in La critica sociologica, Roma, 2003, p. 61 f.
indirect) aggression conducted by the United States of America for the intentional purpose of economic, social and political destabilization of large areas as Eastern Europe, Middle East and North Africa.\footnote{46}{See A.L. VALVO, Il terrorismo nell’epoca dell’economia post-globale, in S. ANDÒ – A.L. VALVO (a cura di) Oltre Parigi, Leonforte, 2016, p. 139 f.}

The American foreign policy might be ascribable to a radical incapacity of the American leaders\footnote{47}{See F. ZAKARIA, L’era post-americana, Milano, 2008.}, otherwise is intentionally conducted for the preordained purpose of destabilization of the European Continent in its entirety (that is Eastern, Central and Western Europe) in order to obtain, with the mortification of the so-called job market and the social security, more accessible markets for the flow of its production.

The fact that everything is justified in the name of fundamental human rights and freedoms or with the exportation of a misinterpreted democracy (whose nature is not intended yet) constitutes a relevant legal problem on international plan because conducted through repeated and different aggressions to the sovereignty and economic and political independence of several States (Ukraine, Iraq, Libya, Egypt, Tunisia etc., waiting Venezuela as the next beneficiary of democracy and fundamental human rights and freedoms).

\section*{11. THE AGGRESSIVE FOREIGN POLICY OF THE UNITED STATES OF AMERICA}

On the really political plan the underlying intentions of these actions of foreign policy are just ignoble considering that the same USA directly or indirectly (as, for example, through Saudi Arabia or Qatar) fund that international terrorism that they declare to contrast.\footnote{48}{Cfr. L. CORSO, Teoria della guerra giusta e lotta all’IS: vecchie categorie per nuove logiche?, in S. ANDÒ – A.L. VALVO (a cura di) Oltre Parigi, cit, p. 69-105.}

And even at this regard, it is better understood the direct correlation between sovereignty and political independence of States and grave damages on the international and internal security following the terroristic phenomenon that is, rightly, funded from who declares to combat it. What really happened and still happens in the Democratic Republic of Syria is the clear evidence.

On the other side, anyone might have understood the consequences – then promptly verified – of the destitution, for example, of the socialist regimes of the Iraqi President Saddam Hussein or of the Head of the Popular Republic of Libya Muammar Gaddafi who, in unsuspected times and moments, announced dramatic consequences of the real invasion that the European Continent might suffer from migration originating from Central Africa in case the Libyan “fortress” felt down.\footnote{49}{See A. SINAGRA, L’intervento militare in Libia e il diritto internazionale, in Atti del Convegno in memoria di Luigi Sico, Napoli, 2011, pp. 499-507; A. BERNARDINI, L’aggressione della Libia, crimine internazionale dei “forti”, dunque impunito e la replica bramata contro la Siria, in Rivista della Cooperazione Giuridica Internazionale, 42, Milano, 2012, pp. 9-55; U. VILLANI, Aspetti problematici dell’intervento militare nella crisi libica, in Diritti umani e diritto internazionale, 2, Milano, 2011, p. 369-432.}

Maybe not just a premonition but the foresight of the flagrant aggression of the Libyan State from the English-French and American coalition, finalized with the acquisition of the natural resources of this Country and the prohibition of the creation, as from the intentions of Colonel Gaddafi, of the dinar as a common African currency guaranteed by gold reserves.\footnote{50}{See A.L. VALVO, La politica estera e di difesa della UE: il caso libico, in Rivista della Cooperazione Giuridica Internazionale, 48, Roma, 2014, p. 30-36.}
which might have shocked the oppressive monetary global order whose policy is conducted by banks owned by private individuals, as the case of European Central Bank (belonging to a private company) that administrates the monetary policy of the EU member States in a completely politically irresponsible way.

12. CONCLUSIONS

Summing up, national and international security calls for - against the opposite view that presently seems to be prevailing - a strengthened State sovereignty so that the State might be able to fully exercise its own rights. In addition, the internal organization of the State and a balanced relationship with national minorities living within it contribute to the maintenance of international peace and security. In order to guarantee a minimal standard of security it is also important to avoid any intervention in matters which are within the domestic jurisdiction of any State by guaranteeing its territorial integrity, political independence and autonomous exercise of sovereign public powers.

Above all, it is important to prevent and struggle against any destabilizing policy (including aggression) implemented by western States at regional level (Middle East, Eastern Europe, North Africa, Asian South-East). Such policy created - maybe with willingness - the present phenomenon of mass migration that is threatening the internal public order of many States, the peaceful developing of international relations and, above all, the fundamental need for collective and individual security due to the always more widespread phenomenon of international terrorism.

REFERENCES

INTERNATIONAL CADRE FOR REDUCTION OF RISK OF DISASTERS - CRITICAL REVIEW ABOUT IMPLEMENTATION IN THE REPUBLIC OF SERBIA

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Abstract: By establishing a system of interoperability of protection and rescue on a global level, a wide range of possibilities, international cooperation aimed at reducing the risk of disasters, is being created. Of particular importance is the unique platform based on international documents, on which national systems are being developed, avoiding conflicts in the development of the ability of the protection and rescue system. Defining unique guidelines for the development of the system enables easier and faster response and assistance in emergencies. The system of protection and rescue in the Republic of Serbia is based on international documents, but sufficient level of integrity is not achieved for various reasons.

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Key words: protection and rescue, interoperability, help, reaction

1. INTRODUCTION – PROBLEM DESCRIPTION

The strategic dimension of the protection and rescue system in the Republic of Serbia is integral to the adoption of the National Protection and Rescue Strategy (2011), and is regulated by the Law on Emergency Situations (2009). The new system starts from the principle that the crisis is resolved where it arises, resulting in the transfer of responsibilities to local government units, which is not followed by the necessary legal institutional upgrading of the system, material technical investments and appropriate personnel solutions. Since the adoption of the Law, there has been a small number of attempts, systemic analysis of problems and deepened critical analysis and more serious empirical research into the way this system really works in practice in all its organizational, institutional, normative, material and technical aspects, as well as in all phases of crisis, or emergency situations (prevention, preparation, response and recovery). The problem relates both to the functioning of the system as a whole and to its efficiency and effectiveness at the local level.

The essential problem of the protection and rescue system is the inversion of the importance of legal and strategic documents, where the Protection and Rescue Strategy is adopted on the basis of the Emergency Situations Act. Still, the implementation of the law and the implementation of the strategy, especially at the local level, the level of companies and other legal entities, has no bearing on the personnel trained for the needs of the system, but on the people who are on the jobs, where they exist, determined on different bases.

The international framework for disaster risk reduction insists on these elements, which are theoretical and practical, essential sources of risk.
Analyzing the contents of the Hjog framework, in the final consideration of the realization of the set goals, it is concluded that it is crucial to anticipate, plan and reduce the risk of disasters in order to strengthen the resilience of the social community to the dangers. By developing and implementing these three functions, conditions are created for reducing the vulnerability of the social community in relation to the dangers specific to the given territory. It is also noted that in contemporary society “the exposure of people and property to risks more rapidly increases than their vulnerability is reduced”. The final position defines the goal: “Preventing new and reducing existing disaster risks through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce exposure to hazards and vulnerability to disasters increase readiness for Reaction and reconstruction, and thus increase resistance“, which essentially represents” the global goal of the frame from Sendai.

2.1 International Cadre for Disaster Risk Reduction

Based on the achievements of the realization of the objectives of the cadre from Hjogo, the cadre from Sendai defines seven global goals derived from the global goal [1]:
1. A significant reduction in global mortality by disasters by 2030;
2. A significant reduction in the number of affected populations on the global level by 2030;
3. Reduction of direct economic losses due to disasters;
4. Significant reduction in disaster damage caused by critical infrastructure;
5. A significant increase in the number of countries with national and local disaster risk reduction strategies by 2020;
6. Significant improvement of international cooperation with developing countries through adequate and sustainable support;
7. Significantly increase the availability and availability of early warning systems for multiple dangers, as well as information and risk assessment of disasters by 2030;

Defining objectives in this way creates a comprehensive basis for the development of strategic guidelines in national states. Based on the defined goals, the frame from Sendai sets four basic priorities [1]: understanding the risk of disasters; Strengthening the disaster risk management system for the purpose of effective risk management; Investing in disaster risk reduction in order to strengthen resilience and improve readiness for effective response in case of disaster and build a “better system from that pre-disaster” during reconstruction, rehabilitation and reconstruction.

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51 Resilience is the ability of a system, community or society that is exposed to the danger of resisting, absorbing, adapting and recovering from the effects of hazards in a timely and effective manner in order to preserve and restore key structures and functions (critical infrastructure) [1]
52 Danger is a potentially harmful physical event, the occurrence or action of a person who results in the effects of loss of human life or injury (and animal), degradation of material goods, obstruction of social or economic development and / or degradation of the environment [1]
53 Vulnerability is a state that is determined by physical, social, economic, and environmental factors or processes, which increase the exposure of the community to the effects of hazards [1]
Strategic planning of protection and rescue in national states is the basis for the development of protection and rescue systems as a single and integral system. In accordance with the global goal number five, the national document in the field of protection and rescue has a top priority. And the importance of developing a disaster risk reduction system.

2.2 Risk assessment and mapping guidelines for disaster management in the European Union

Taking into account the postulate of the Hjoga and Sendai frameworks, the European Commission has developed Guidelines for risk assessment and mapping for disaster management (guidelines). The main purpose of the guideline is to improve the coherence and consistency between risk assessments made at the national level in the prevention, preparedness, and planning phases. The accent is given on the cross-border dimension.

The guidelines set out the main objectives:

1. Improving the application of good practice and international standards in the application of the risk assessment methodology;
2. Providing risk management instruments to the disaster management authority and all stakeholders;
3. Communication with international UNISDR\textsuperscript{54} and UN-OCHA\textsuperscript{55} forums;
4. Contributing to the development of a policy to prevent disaster-based disasters at different levels of government;
5. Improvement of communication on priority setting in investments in the area of prevention, preparedness, and reconstruction;
6. Contribution to raising awareness about disaster prevention measures;
7. Risk mapping in the EU territory, as the basis for the classification of major risks in the future;
8. Contribution to establishing an information base on ambulances and;
9. Establish risk management as part of a policy that links risk and risk assessment to decision-making.

The guidelines are designed to unify a look at the solution to the problem of risk assessment. They are part of the wider context of disaster risk management. Disaster Risk Management is the process of identifying all social resources and capacities in order to reduce the level of identified risks, or the consequences of the events that have occurred. The objective of the risk management process is to plan measures to mitigate existing risks (planning capability), monitoring and reviewing hazards, risk and vulnerability, as well as communication and state-of-the-art consultations. Risk assessment is the basis for assessing the vulnerability of various hazards, which is the basis for optimizing the process of dimensioning of the protection and rescue system.

3. REVIEW OF THE NATIONAL STRATEGIC CADRE FOR RISK REDUCTION FROM DISASTERS

The system of protection and rescue of the Republic of Serbia came from the provisions of the Constitution of the Republic of Serbia. The Constitution, as the competence of the state and the municipality, stipulates, among other things, that it takes care of environmental protection, protection from natural and other disasters. Different laws in the Republic of Serbia place an obligation “to organize protection from elementary and other major disasters

\textsuperscript{54} International Strategy for Disaster Risk Reduction
\textsuperscript{55} Office for the Coordination of Humanitarian Affairs
and fire protection and create conditions for their elimination or mitigation of their consequences.

3.1 National Strategy for Protection and Rescue

The basis for the drafting of the Strategy was the Emergency Situations Act, which indicates a lack of understanding of the relationship between the hierarchy of documents that govern and direct the system. The National Strategy includes the recommendations of the European Union for the development of the national protection and rescue system through the establishment of institutional, organizational and personal conditions for the implementation of emergency protection and rescue operations. [7]

The effectiveness and quality of the implementation of the strategic guidelines, defined in the protection and rescue strategy, depends on the degree of community's readiness to face reality, no matter how influential it is to political or other interests. A complete and unequivocal review of the state of the vulnerability of the social community from disasters, promotion of the necessity of participation of all entities in the construction of a system, and a good legal framework are prerequisites for raising the capacities of local communities and the state for preparedness and response in case of disasters. Bearing in mind that the strategy has been designed until 2016, it can be concluded that it does not contain long-term vision of the protection and rescue system, but only for a given period.

By analyzing the content of the strategy it can be concluded:
1. The strategy text deals more with the description of the current state of the protection and rescue system than the strategic analysis;
2. In the description of the state of the protection and rescue system, it is noted that the current level of organization and training of the protection and rescue system is significantly behind the estimated needs and objective opportunities available to the state;[56];
3. The strategy defined five strategic areas, from which it can be concluded that they include all elements of emergency management, that is, the development of the ability of the protection and rescue system.

Although it is oriented towards the HQ framework, the national strategy has elements that can be used to develop a strategic visionary document, which will establish long-term guidelines for the development of the national protection and rescue system. Therefore, harmonization of national documents with the Sendai cadre would be done.

3.2 National risk management program for natural disasters

The problem of the strategic framework for disaster risk reduction in the republic of Serbia was dealt with by a greater number of studies and research, and the strategy itself is mentioned. The results almost always pointed to the inadequacy of existing regulations, non-compliance with legal obligations at all levels of governance (eg, vulnerability assessments and protection and rescue plans in emergency situations were not elaborated in most subjects), poor coverage of adequate staff, lack of inspection supervision, etc.

An attempt to solve the problem of harmonizing national regulations with the international one is created by the adoption of the National Program for Managing Risks from Natural Disasters. The program has several important characteristics [4]:
1. The name of the program indicates that it is oriented only to natural disasters;

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[56] National Strategy for the Protection and Rescue of Chapter II. Note: the term “estimated needs” was used without a support for a national assessment of the threat of natural disasters and other accidents (which was not even made in 2017)
2. The introduction of the program speaks of its conception on events from the floods of 2014;
3. Financing mechanisms are focused on international sources, which indicates that in the national system the need for improvement of this element is not recognized, first of all at the local level;
4. Through the development of six components, the program encompassed a framework to observe all the necessary elements of an effective protection and rescue system.

The National Program was adopted by the Conclusion of the Government of the Republic of Serbia 05 No. 217-16233 / 2014-1 of 19.12. 2014, and the Sendai box 03/18/2015. Which indicates that the national program was created on the basis of the Hogo Framework and did not follow the changes in the international plan, even two years after the adoption of the Sendai cadre.

3.3 The basic postulates of the legal cadre

The materialization of an integral protection and rescue system was implemented through the adoption of the Emergency Situations Act.57. The main advantage of the Act is that it puts a local self-government unit in focus. What is logical, if the fact that natural disasters and other accidents are known, they first affect the protected values in the territory where they originated. In addition to the Constitution and the Law on Local Self-Government that authorize local self-government to organize the management of emergency situations in general, the duties, rights and obligations of local self-government in this area are detailed in the Law on Emergency Situations, as the basic law regulating this field.

The principles of protection and rescue are established and, as one of the principles of protection and rescue, states the principle of gradualness in the use of forces and means by which the first forces and resources from the territory of the local self-government unit are used in protection and rescue, which means that the emergency situation is reacted there Where it happens, that is, in the local community, and that the republican forces and resources are engaged only when the capacities of the local community are insufficient. This approach is correct, but with the lack of provisions that regulate the obligation to monitor the danger and activate the protection and rescue forces at the republic or district level, which is why there is disproportion in the response and assistance times. The result is a “delayed response” which leads to a disadvantaged position of the local self-government unit, due to the lack of people and resources. The problem is solved by the preparation of protection and rescue plans and their implementation in practice. Planning documents are at the stage of elaboration or acceptance at different levels (without the republic, provincial and district), which means that the system cannot react at this time on the basis of them.

4. RESEARCH OF POPULATION ESTABLISHMENTS ABOUT THE STAGE OF CONSTRUCTION OF THE SYSTEM OF PROTECTION AND RESETTLEMENT IN CASE OF NATURAL DISASTERS

The perception of the state of the system of protection and rescue at the national level was the subject of research on the Natrisk project, in which respondents gave their opinion on various bases of system observation, and in all according to the priorities defined in the

57 “Official Gazette RS”, no. 111/09, 92/11, 93/12
58 Development of master curricula for natural disasters risk management in Western Balkan countries
Sendai cadre\textsuperscript{59}. The survey was carried out among public sector employees (permanent and temporary employees), in the economy, study and unemployed persons. The sample was 1200 persons in the Republic of Serbia, both sexes \cite{8}.

4.1 Results of research on prevention and understanding of risks from natural disasters

Starting from the first priority of the Sendai cadre, respondents are asked a set of questions from the field of awareness of natural disasters and the perception of the activities of the protection and rescue system in terms of conducting prevention.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Attitudes on the awareness of natural disasters}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2.png}
\caption{Attitudes on prevention activities}
\end{figure}

\textsuperscript{59} The results of the survey reflects the opinion of the respondents and in no case refer to the position of any institution, group or individual representatives of institutions.
The results clearly indicate the divided opinion of the respondents about the presence of a certain level of awareness about the existence of natural disasters (Figure 1). Given the fact that the public sector most people consent to be aware, it indicates that these persons have access to information on the protection and rescue system. In addition, a similar number indicates a disagreement, which speaks of persons whose information is not available. The private sector also shows a shared opinion, which speaks of a different approach to information, that is, managers and security professionals have information, while workers do not. Unemployed persons and persons on education share the opinion of the previous two groups. From the above it can be concluded that a greater number of persons in the community indicate a lack of information on natural disasters. Bearing in mind that fewer persons are in the public administration and managerial positions, then employees in public administration who do not have access to information, persons in education and unemployed persons represent a critical number of persons who consider that there is not enough developed awareness of the danger of natural disasters. When the prevention is concerned, the vast majority believe that prevention is not implemented in a systematic and sufficient way (Figure 2).

4.2. The results of the research on the state of the protection and rescue system

The state of the protection and rescue system, its design and readiness to respond, respondents gave opinions through a set of questions.

![Figure 3. The attitude of the respondents about the perception of the existence of a system of protection and rescue](image1)

![Figure 4. The attitude of the respondents about the development of forces and means of protection and rescue](image2)
Through the above views, the respondents, of all groups, indicate that the perception of the existence of a system of protection and rescue, at the executive level, is not satisfactory (Figure 3). Also, the development of the forces and means of protection and rescue is not at the level that guarantees the minimum capacity for effective and effective response (Figure 4). It is interesting that respondents consider that there is a high level of awareness among the population about the legal obligation to respond to civil protection.

4.3. The results of the research about the resilience of the social community to natural disasters

The resistance of the community is not at satisfactory level, says more than 60% of the respondents. The perception of the sense of resilience to natural disasters has been looked at through several focused questions.

![Figure 5. Attitudes of respondents on the perception of training and training for emergency situations](image1)

![Figure 6. Attitudes of the respondents about the perception of the early alert and alarm system](image2)
The importance of training and training for prevention and response in case of natural disasters is large, considered by the majority of respondents, but not adapted to the real existence of danger to the social community, over 80% of respondents agree (Figure 5). Over 80% of respondents agree that early alert, notifications and alarm systems do not meet the needs of the community (Figure 6).

4.3. The results of the research on the possibilities of renewal of the social community after natural disasters

The reconstruction process is a very important moment in the management of emergencies, in which, practically, the social community curtails and practically shows its ability to deal with the consequences of an emergency. Respondents gave their opinion on the process of recovery after a natural disaster.

![Existence of recovery plans](image1)

Figure 7. Attitudes of respondents on the existence of recovery plans

![Emergency services](image2)

Figure 8. Attitudes of emergency respondents
Over 80% of respondents agree that there are no recovery plans or inadequate ones. It is interesting that persons employed on the basis of political engagement consider that there are plans to remedy the damage (Figure 7). The view that emergency services are sufficient in the territory of the social community is not certain or not support, over 70% of respondents (Figure 8).

5. CONCLUSION

The system of protection and rescue in the Republic of Serbia has normative and legal regulation. The existing normative and legal regulations indicate that it was made in the light of the Hjogo cadre. It also indicates that it is not aligned with the Sendai cadre. Based on the analysis of the contents of the existing documents, it can be concluded that there is a high level of uncertainty and uncertainty of the national protection and rescue strategy and the national program for reducing the risk of natural disasters. The existing legal cadre does not allow implementation of the system in practice, so the system is constantly located “between the solutions“.

The results of the survey of attitudes of the population, different categories of education, employment and both sexes point to the existence of awareness of the presence of danger from natural disasters, the perception of system disorder and the lack of political will and the interest in putting the system at the top of the priorities in the sustainable development of the Republic of Serbia.

From the above arguments it can be concluded that normative and legal regulations in the Republic of Serbia do not fully follow the development of normative regulation at the international level. The main priorities of the Sendai Framework have not been implemented in the practice of protection and rescue of the Republic of Serbia. It is expected that at the level of the Government of the Republic of Serbia, measures will be taken at an accelerated pace to engage experts in all areas of importance for emergencies, in order to structure the most important strategic, doctrinal and legal documents in the field of protection and rescue.

LITERATURE
[1] Frame from Sendai, to reduce the risk of disaster 2015-2030, A / CONF.224 / CRP.1
INSTITUTIONAL AND LEGAL OBSTACLES IN PERFORMING NATURAL DISASTER RISK MANAGEMENT IN THE NORTH OF KOSOVO AND METOHIJA

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Abstract. The purpose of this paper is to research and comprehend the barriers that Natural Disaster Risk Management faces in the fragile situation in the post conflict area of North of Kosovo and Metohija. Due to recent political situation, lack of capacities and financial resources authorities of municipalities on the North of Kosovo and Metohija were not able to pay proper attention to Disaster Risk Reduction and disaster management. During the decades the Disaster Risk Management system was being built under the system of Ministry of Interior of Republic of Serbia, and the Northern Municipalities were relayed on that system and on the Civil Protection human resources. There are no disaster or recovery coordinating mechanisms addressing Northern Kosovo and Metohija as a whole. The elements of disaster management system in the Municipalities are clearly response-oriented, with almost no attention to preparedness and prevention. Without going into very general aspects of functioning of the disaster management system in Kosovo and Metohija, there are certain recommendations presented, which may help to prepare for emergencies or even prevent some of them. Monitoring, early warning and communication procedures play crucial role in preparedness and prevention; therefore arrangements in these areas should be reviewed and improved in the first place. In several cases level of disaster resilience in North of Kosovo and Metohija will depend on willingness of the authorities to enter into a dialogue and reach appropriate agreements.

Keywords: post conflict region, Natural disaster risk, legal framework, Disaster risk reduction plan

1. INTRODUCTION

The study is affecting four municipalities, which are located in north part of Kosovo and Metohija. This particular part of Kosovo and Metohija is specific for its geographic, social and environmental features. This region is geographically placed in 42° 53” N and 20° 53” E, and it has altitude between 508 and 510m. It has around 154km². Dominant forms of relief are volcanic cone in form of Zvecan hill (797m in height) and firth of river Sitnica into river Ibar. From the east, north and west, region is surrounded by mountains Kopaonik, Rogozna and Mokra Gora. Through the region, three main rivers are flowing: Ibar, Sitnica and Ljusta. This represents very good geographical position for all human activities, industry and agriculture. Floods, along with earthquakes and forest fires, are regarded as one of three main natural hazards Kosovo and Metohija is exposed to [1]. Although there are only historical records but not precise actual data about Northern Kosovo and Metohija, all interviewees mentioned
that water rise of bigger or lesser intensity is observed every year, in March-April – caused by snow melting in the mountains and by rainfalls – and sometimes in November due to excessive rainfalls. Pursuant to the “Administrative Instruction on the Methodology of Compiling Risk Assessment and Plans for Protection and Rescue” the municipalities have an obligation to complete a risk assessment that can then be used to prioritize the threats to society and to make emergency plans accordingly. Once the risk assessment is accomplished, it must be approved centrally before planning can begin.

In the Northern municipalities there are no risk assessment plans. Most of protective measures, if any, date back to the Yugoslavian period of history, i.e. to 1980-es. Knowing about regular character of flood occurrence and of its main causes, municipal authorities do very little to reduce risk factors, prevent consequences, protect people and infrastructure. It also seems that people are aware of floods on the level of historical memory, although no systematic awareness raising activity is carried out to prepare households to flood seasons.

No specific risk assessment has ever been conducted in Northern Kosovo and Metohija in the last 15 years at least. Although main causes of disasters and areas potentially at risk are generally known because of historical experience, the modern approach to risk assessment and its management through evaluation and subsequent reduction of hazards, exposure and vulnerability was not exercised, most probably because of lack of relevant capacity. Political complications left their trace on Natural Disaster Risk Reduction process, now the issue has to be addressed in light of Brussels Agreement of 19 April 2013[2].

2. RESEARCH METHODS

The study has included primary and secondary data. Primary data are obtained by mixed methods: qualitative research through Semi-structured interviews with the stakeholders in the region of interest, and quantitative research by the questionnaires. In this research some eight officials having different positions in four municipalities were interviewed. The quantitative research data are obtained by questionnaires distributed to the representative sample of 96 citizens in the analyzed four municipalities. The participants were from public sector, administration, utility companies, health, police and education. Secondary data are used to analyze and compare applicable laws, strategies and documents in the domain of Natural disaster risk Management.

3. RESULTS AND DISCUSSION

Due to the specific situation of Northern Kosovo, only municipal authority level is involved into response and relief activities. In all municipalities establishment of municipal Crisis Commission for emergencies is envisaged; they actually convened during April floods. According to representatives of the municipalities, the Crisis Commission is chaired by the Mayor; operational staff is chaired by Director of Civil Protection Department. Unfortunately, municipalities could not provide written procedures of the Crisis Commission work as well as coordination plans. Representatives of the municipalities confirmed that there were coordination plans for emergencies in place. The Coordination plans are made according to the Laws applicable in Republic of Serbia. Although Brussels Agreement from 19 April 2013 (First Agreement of Principles Governing the Normalization of Relations)[2] does not specifically address civil protection and Disaster Risk Reduction issues, the activities of the central authorities in Pristina should not be organized on the North of Kosovo and Metohija without consulting the local authorities. Coordination and Chain of Command – according to the IEMS, in case of emergency the unified command (UC), which is an element in multijurisdictional or multiagency incident management, should be established. The task of unified command is to provide guidelines to enable agencies with different legal, geographic, and functional responsibilities to
coordinate, plan, and interact effectively. As a team effort, UC allows all agencies with jurisdictional authority or functional responsibility for the incident to jointly provide management through a common set of response objectives and strategies and a single Incident Action Plan.

It is not obvious, whether and how the municipal Crisis Commissions in Northern Kosovo and Metohija municipalities fulfill the duties of the Unified Command. For example, it was mentioned that a Mayor of a municipality in case of lack of resources may directly call assistance from KFOR. According to the interviewed KFOR official, it contradicts the correct procedures for KFOR intervention as their assistance in emergency situations might be required by governmental structures only.

3.1. Inter-municipal cooperation

Fire Service – there are three fire stations in Northern Kosovo and Metohija in Kosovska Mitrovica, Zubin Potok and Leposavic. The main purposes of their deployments are forest fires, but they respond to other incidents, such as floods, traffic accidents, accidents with animals. This situation clearly emphasized the importance of inter municipal cooperation, that is also recognized by the quantitative survey, where the participants were asked if they agree that the inter municipal cooperation presented in Fig.1.

![Figure 1. Quantitative Research results on the question: Do you think that inter-municipal cooperation is important for NDRM](image)

Since the Spatial Planning is set as a priority jurisdiction of the Association of the Serbian Municipalities [2], it is of the great importance that also Natural Disaster Risk Management will be under the umbrella of the Association.

3.2. Emergency response number

After signing of Brussels Agreement from 19 April 2013 first contacts between municipal authorities and commanders of Fire Units from North of Kosovo and Metohija with EMA
officials were made. In June 2014, commanders of three Fire Units of North of Kosovo and Metohija (Leposavic, Zubin Potok and Kosovska Mitrovica) were invited and participated in the workshop “112 and the smartphone application "Kosovo Emergency Management Application” organized jointly by EMA and supported by UNDP KDRRI. That was the first time they attended an event organized by EMA.

Emergency Response Number – in three municipalities where the LPDNA was carried out people use emergency number 193 to call a Fire Station. Firefighters are the first responders in any emergency situation. Information to police, ambulance, local authorities goes through separate channels (numbers) and seems to be rather chaotic. Meanwhile in other parts of Kosovo and Metohija, five Regional Emergency Operational Centres (REOC) are working, serving emergency response number 112. REOC dispatchers connect the caller with necessary service(s) and follow the call until the respective service reaches the incident site. In certain cases they hold on questioning or consulting the caller while the aid is coming.

The nearest REOC is situated in Kosovska Mitrovica. According to information from its Head, they receive 1-2 phone calls per month from Albanians living in Northern Kosovo and no phone calls from Serbians. Disasters do not recognize state or ethnical borders, therefore access to emergency assistance should be equally granted to the whole population.

The multiplicity of channels, along which the information is spread, especially in the first hours after the incident, usually leads to certain delays in response action. Establishing procedures of information exchange and following them will lead to quicker and more coordinated response.

The survey showed that civil servants from the North of Kosovo and Metohija strongly agree that urgent and efficient responding system is crucial in Natural Disaster Risk Management in the North of Kosovo and Metohija, as shown in Fig.2.

![Figure 2. The quantitative results of the responds on the question: Do you agree that there is a need for urgent and efficient response system?](image)

**3.3. Institutional Arrangements**

During last years civil protection system in Northern Kosovo municipalities existed on its own, without any proper relations with Higher level of command. It was solely oriented
towards response, without paying due attention to disaster prevention and risk reduction. This attitude is considered nowadays inappropriate, especially in the region prone to different types of disasters: earthquakes, floods, forest fires, drought, and environmental emergencies. In the interviews some (but not all) Northern Kosovo and Metohija officials considered Disaster Risk Reduction and disaster prevention issues as important; however, there is no system in place to institutionalize those issues and to implement and enforce them. Due to the lack of expertise and proper financing municipalities have never made risk assessments or disaster management plans. In most of the cases individual households are left with responsibility to protect themselves. The private sector has a big role in Natural Disaster Risk Management. The Municipalities have contract with Construction companies, transportation companies etc. in order to enhance the resources in case of the disaster. In many situations people tend to expect from local (municipal) authorities more than the latter are obliged to do, for example cleaning river banks or protecting agricultural lands, in both cases private property. Proper risk assessment, once completed, will lead to drafting of a municipal disaster management plan, where obligations of public authorities and private entities have to be explained, agreed upon and fixed. This will help avoiding false expectations and later groundless accusations. However, the questionnaires have shown that the level of private business involvement in NDRM is not on the satisfactory level, or at least not announced enough. The answers of the participants are presented in Fig.3.

![Graph](image)

**Figure 3.** Quantitative Research results on the question: Do you think that the private business involvement in NDRM is sufficient

The process of reorientation towards disaster risk reduction and disaster prevention has started in Kosovo and Metohija quite recently. In 2011, the Law for Protection against Natural and Other Disasters of Kosovo [3] was adopted. According to it, the local level is responsible for enforcing protection against natural and other disasters on its territory. The law imposes responsibilities on municipalities, *inter alia*, regarding monitoring of risks, risk assessment and emergency response planning. The local level is responsible for:
management system for protection, rescue and assistance at the local level;
monitoring of risks, warning and alarming the population about potential threats;
equipment with electronic communication tools for protection needs, rescue and assistance in accordance with a unique system of communication and information;
planning and implementation of preventive measures;
processing of risk assessment and emergency response plans;
organization, development and management of personal and reciprocal protection;
organization, management and implementation of protection, rescue and assistance at the local level;
defining, organizing and equipping units and SPRA utilities and other organizations in this field;
the supply of necessary resources for emergency accommodation in cases of natural and other disasters;
developing and carrying out training programs of local importance;
coordinating emergency response plans and other protection operations for rescue and assistance with neighboring municipalities;
supplying with basic conditions of life and restoration, recovery from natural and other disasters;
identification of organizations of special significance for protection, rescue and assistance at the local level;
international cooperation in the protection, rescue and assistance under this law.

When in natural and other disasters the protection, rescue and aid are requested, the local levels will initially deploy firefighting units and use their own civil protection resources (which are usually quite scarce). When the degree of risk and disaster exceeds the capacity of local emergency services and current resources at local level or when they can’t be obtained by the local neighbors, the central authority should provide them from other regions. If available forces and resources are insufficient to cope with necessary rescue and aid operation, then a municipality through EMA may request the deployment of other civil protection resources, including the international ones.

A National Response Plan (NRP) published in December 2010 provides a framework for a national approach to incident management. Within this plan, clear roles and responsibilities are assigned to various government institutions at central and regional levels. Roles and responsibilities are also defined for local governments, as well as for the private sector and non-government organizations. According to the National Response Plan [4], the Mayor, as the executive chief of the municipality, is responsible for public safety and wellbeing of the citizens in that municipality. The Mayor:

- is responsible for coordinating local resources to address the full spectrum of actions of prevention, preparedness, response and recovery from incidents in the context of all risks, including natural disasters, technological accidents and other contingency;
- on certain emergency circumstances, has political power to make, amend and repeal of the orders and regulations;
- assures leadership and plays a key role in communication with the public and helping people, businesses and organizations to deal with the consequences of any emergency declared within the jurisdiction of the municipality;
encourages participation in mutual aid and exercises its authority to enter into agreements for mutual aid with other municipalities to facilitate the exchange of resources;
- requests central support when concluded that local capacities are insufficient, surpassed or exhausted.

At the municipality level, there is a designated municipal office – Directorate for Protection and Rescue – that deals mainly with emergency management. All activities at this level are based on the Law on Protection from Natural and other Disasters, the Law on Fire Protection and the Law on Local Self Government. Each municipality has to prepare an Emergency Response Operations Plan, a Fire Protection Plan and an Operations Plan for Protection against Diseases. The EMA is responsible for coordinating central and local level organizations, yet such coordination and cooperation could also be done directly between a local level organization and a central one like the Kosovo Police, the Hydrometeorological Institute, the Ministry of Health, the MESP etc.

4. RECOMMENDATIONS

In the reviewed municipalities neither risk assessments nor even hazard assessments have been ever compiled. As risk assessment is the fundamental component of proper disaster management planning, work on its drafting should start as soon as possible. The methodology proposed by the European Commission Staff Working Paper “Risk Assessment and Mapping Guidelines for Disaster Management” [5] should be taken as a basis. According to this document, “Risk assessment and mapping are carried out within the broader context of disaster risk management. Risk assessment and mapping are the central components of a more general process which furthermore identifies the capacities and resources available to reduce the identified levels of risk, or the possible effects of a disaster (capacity analysis), and considers the planning of appropriate risk mitigation measures (capability planning), the monitoring and review of hazards, risks, and vulnerabilities, as well as consultation and communication of findings and results.” Proper use of the EU Guidelines as a basis for risk assessment will not only help EMA and other stakeholders to go through this process in a coordinated way, but will also introduce a European model of risk assessment, which is commonly recognized by the EU Member States. As it is mentioned in the Guidelines, “successful planning will require coordination between the varied government departments or agencies responsible for managing the consequences of different types of emergencies. A national risk assessment provides an agreed basis for priorities in emergency planning which will facilitate this coordination. It can also be used to ensure an appropriate balance of investment in measures to prevent and mitigate risks”.

Another EU document, which has certainly to be taken into consideration while making risk assessment on central and municipal levels, is the Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, also known as the EU Flood Directive [6]. This Directive is, of course, addressed only to the EU Member States, but its methodology can be used in Kosovo as well. The Directive sets a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity. The Directive requires from the Member States making a Preliminary Flood Risk Assessment. The information in this assessment will be used to identify the areas at significant risk which will then be modeled in order to produce flood hazard and risk maps. These maps should include detail on the flood extent, depth and level for three risk scenarios (high, medium and low probability). Flood Risk Management Plans [7] can then be produced to indicate to policy makers, developers, and the public the nature of the risk and the measures proposed to manage these.
risks. The management plans are to focus on prevention, protection and preparedness. In order to ensure community buy-in the Flood Risk Management Plans will require input from interested parties during their development.

The same approach can and probably should be used in Kosovo and Metohija. Since Kosovo and Metohija is eligible to use the EU funding Instrument for Pre-Accession Assistance, or IPA [8], it should enhance the process of harmonization of its legislation with the EU one. In the last few years, a number of profound researches were made regarding risk management in Kosovo and Metohija, in particular, flood risk management. Due to the political complications and lack of data, they almost never address situation and risks on the North of Kosovo and Metohija, however, the generic methodology is very good and needs to be taken into consideration and used, where appropriate. As an example, the “Kosovo Flood Risk Management Framework. An Action Plan for Policy, Procedures and Coordination (Water Task Force, Swiss Cooperation Office Kosovo)”[9] analyses the situation with floods in Kosovo and Metohija, highlights flood risks and its components and gives detailed recommendations and methodology on organizing flood management framework on central and municipal levels.

Weather and water level monitoring is one of the key elements in risk reduction and preparedness for emergencies. Hydrometeorological Institute of Serbia (HMIS), has a good database of historic data regarding water level in Kosovo rivers. According to the information from HMIS, there were two water measuring stations on the Ibar River: in Prelez and Leposavic. HMIS specialists’ access to data from Prelez ceased because of the situation, and measuring station in Leposavic was destroyed by floods in 2003 or 2004. Therefore no data from these stations are available anymore. There is a project financed by Republic of Serbia on Climate Change impact to the Environment conducted by the University in Kosovska Mitrovica, that has included restoration and equipping the meteo and hydrograph stations on the North of Kosovo and Metohija. NDRM can benefit from use of European flood forecasting systems. The European Floods Portal [10] brings together information on river floods and flood risk in Europe prepared by the Joint Research Centre (JRC) of the European Commission as well as from public available information from EU countries. One of the primary tools of the JRC is the availability of the European Floods Alert System (EFAS). EFAS is an early flood warning system complimentary to national and regional systems. It provides the national institutes and the European Commission with information on possible river flooding to occur within the next three or more days. EFAS alert levels are based on a 20 year model run using observed meteorological data as input. The model is run in EFAS for all of Europe on 5 km grid, and coverage includes Kosovo. Lack of capacity in terms of risk identification also impacts early warning. In Northern Kosovo, there are no early warning mechanisms to inform authorities and the public about developing trends of risks – that increases population exposure to various natural hazards.

This regulation provides for a system of alert signals for population. It could be recommended that these alert levels and signals would be linked to weather alert code system used by the European weather warning service Meteoalarm (www.meteoalarm.eu).

5. CONCLUSION

Due to recent political complications, lack of capacities and financial resources authorities of the municipalities on the North of Kosovo and Metohija were not able to pay proper attention to Disaster Risk Reduction and disaster management. Necessary preventive measures should be taken also at legislative level and in legislation enforcement. Other recommendations are related to general Disaster Risk Reduction measures, including improvement of institutional
arrangements between central and municipal authorities and building culture of safety and resilience.

There are no disaster or recovery coordinating mechanisms addressing Northern Kosovo and Metohija as a whole. The Municipalities should take advantages of the legislation that gives local authorities great opportunities to shape the Natural disaster risk management, and take responsibilities for all phases of this process. The municipalities should be pro-active and take steps for development of Risk Assessment and Disaster Risk Reduction Plan, using EU legislations as a basis, and IPA as a financial instrument.

REFERENCES

[3] Law No. 04/L-027 FOR PROTECTION AGAINST NATURAL AND OTHER DISASTERS, official gazette / No. 22 / 19 October 2011, Pristina
[5] Disaster Risk Reduction Increasing resilience by reducing disaster risk in humanitarian action European Civil Protection And Humanitarian Aid Operations,, EU CIVIL PROTECTION ECHO FACTSHEET September 2013
[7], Humanitarian Protection Improving protection outcomes to reduce risks for people in humanitarian crises, EU CIVIL PROTECTION ECHO FACTSHEET,, May 2016
Landslide Susceptibility Zonation in the UB Municipality

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Abstract: Considering the fact that about 25% of the territory of the Republic of Serbia is affected by landslide process, in order to manage landslide hazard and risk in an adequate way, it is of utmost importance to allocate zones with a different degree of landslide susceptibility. That should be inevitable part of all spatial and urban plans, as well as other planning documents, from the state level to the level of local governments. In the Ub Municipality the occurrence of landslides is already determined at about 4% of its territory. For proper spatial development planning of the municipality, which will gain importance due to the construction of the Belgrade-South Adriatic highway, it is necessary to allocate zones of different landslide susceptibility, which is based on application of GIS in the analysis of natural conditions of which susceptibility largely depends. This paper was realized as a part of the project “Studying climate change and its influence on the environment: impacts, adaptation and mitigation” (43007), financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

Keywords: GIS, Landslide Susceptibility Index (LSI), lithology, slope, CORINE Land Cover.

1. INTRODUCTION

Landslides are a significant natural hazard within the territory of the Republic Serbia, and about 25% of its territory is affected by landslide process [2]. In the past, very often this natural disaster has directly and indirectly endangered the environment, population, material and non-material goods. Very big problem represent the fact that there is no landslide cadaster for the entire territory of the Republic of Serbia. In order to reduce risk and potential consequences, and to manage hazard and risk in an adequate way, it is very important to allocate zones with a different degree of landslide susceptibility and vulnerability. Landslide process largely depends on natural conditions that are landslide-related factors. GIS based analysis of those factors is very important and inevitable part of landslide susceptibility assessment, which should be mandatory part of all spatial and urban plans, as well as other planning documents, from the state level to the level of local governments, which include research area of this paper.

The Ub Municipality is located in central Serbia in the Kolubara District, on the area of 456.14 square kilometers. According to the census of 2011, it had a population of about 29,101 inhabitants, with a population density of about 64 inhabitants per km². The municipality is situated on the south rim of Pannonian basin in mainly lowland terrain, and 92.49% of the municipal territory is located on terrain which is below 200 m altitude [3]. The larger part of the territory is situated in the Kolubara River Basin, mostly in the basin of its...
left tributary Tamnava River. Smaller north-western part is situated in the Vukodraž River Basin, which is also right tributary to the Sava River.

Previous research of the Ub Municipality [3, 5, 6] together with field research, shown that active and inactive landslides occupy a total area of 16.89 km², which represents 3.7% of the total municipality area. In 2014 and 2015, after heavy rainfall, significant number of new landslides have been activated, or old landslides reactivated.

With a construction of a traffic corridor Belgrade-South Adriatic, which has length of about 16.3 km in the Ub Municipality, and traffic junction that connects other roads in the municipality with it, its territory should be more attractive for investments in the near future. Hence there is a need to reduce the risks of natural disasters, which include landslides. The aim of this paper is to single out zones of different degrees of landslide susceptibility in the Ub Municipality and to determine landslide vulnerability of its settlements territories, so that appropriate actions in the future can reduce the risk and consequences of this disaster.

2. MATERIAL AND METHODS

For the landslide susceptibility zonation of the Ub Municipality Probability method (PM) is used. It is based on the presumption that landslide occurrence is determined by landslide-related factors, and relationship between landslides occurring in an area and the landslide-related factors is expressed as a frequency ratio that represents the quantitative relationship between landslide occurrences and different causative parameters [4]. The frequency ratio is defined in following formula:

\[
W_{ij} = \frac{(A_{ij}' \cdot (A-A'))}{(A' \cdot (A_{ij}-A_{ij}'))}
\]

Where: \( W_{ij} \) – the weight of class i in parameter j; \( A_{ij}' \) – landslide area in a class i of parameter j; \( A_{ij} \) – area of a class i of parameter j; \( A' \) – total landslide area in the entire study area; \( A \) – total study area. The greater the ratio above unity, the stronger the relationship between landslide occurrence and the given factor’s attribute [4].

The application of the PM was carried out on the basis of data on lithology of the study area, terrain slope, distance from the watercourses, and land cover. Lithology data was obtained by digitalization of contents from geological maps (scale 1:100,000) in GIS software. Terrain slope was derived from the 60 m cellsize digital elevation model (DEM) of terrain. After that classification of slope data to 6 classes was performed. Distance from watercourses was obtained first by digitalization of all watercourses in the municipality from topographic map (scale 1:25,000) in GIS software, and then appropriate buffer zones were created. Land cover data was obtained from CORINE Land Cover 2012 database.

Landslide susceptibility index (LSI) is equal to the sum of all parameters weight. After LSI value calculation, values were classified into four susceptibility classes (very high, high, medium and low susceptibility). According to those values in GIS software the entire Ub Municipality area was classified to four zones of landslide susceptibility. Based on share of areas occurred by landslides in the total territory of the settlements of the Ub Municipality, share of very high and high classes area in the total territory of the settlements, and average values of LSI, classification of the Ub Municipality settlements territories on the four classes of landslide vulnerability (very high, high, medium and low) was performed.
3. RESULTS AND DISCUSSION

Lithology is the primary factor of landslide process, because geological formation determines the possibility of landslide occurrence, as well as the process scale. Landslide hazard zones in Serbia are mostly developed on the slopes of Neogene basins which consist of heterogeneous sediment complexes, with complex hydrologic characteristics and unfavourable morphologic conditions [1]. These sediments, occupy 25.2% of the total municipality area, and 82% of the total landslide affected areas in the Ub Municipality are located in these rocks (Table 1).

Most landslides occur in terrains that are inclined 5 to 10 degrees. In this slope class, which covers 14% of the total municipality area, there is 53.9% of total landslide area (Table 1). On the surfaces of the Ub Municipality that are 100 meters distant from the watercourses there is 21.4% of the total landslide area, and at a distance of 100 to 250 meters that share is 37.2%. In terrains that are 250 to 500 meters away from rivers there are 31.5% of a total landslide area, and over 500 m 9.9% (Table 1).

In CORINE Land Cover classes of non-irrigated arable land, complex cultivation patterns and land principally occupied by agriculture, with significant areas of natural vegetation, most frequent landslide occurrence is detected, 70.5% of the total landslide area, and in broad-leaved forest that share is 18.3%. On all other land cover types there are only 1.2% of total landslide area (Table 1).

Table 1: Total area, landslide area, and weight values of classes of parameters

<table>
<thead>
<tr>
<th>Parameters and classes</th>
<th>Area</th>
<th>Landslides</th>
<th>Wij</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>km²</td>
<td>%</td>
<td>km²</td>
</tr>
<tr>
<td><strong>Lithology</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alluvial sediments</td>
<td>98.50</td>
<td>21.59</td>
<td>0.40</td>
</tr>
<tr>
<td>diluvial-proluvial sediments</td>
<td>24.56</td>
<td>5.38</td>
<td>0.03</td>
</tr>
<tr>
<td>river terrace sediments</td>
<td>53.55</td>
<td>11.74</td>
<td>0.37</td>
</tr>
<tr>
<td>river-lake terrace sediments</td>
<td>137.39</td>
<td>30.12</td>
<td>1.99</td>
</tr>
<tr>
<td>Tertiary clastic sediments</td>
<td>115.02</td>
<td>25.22</td>
<td>13.85</td>
</tr>
<tr>
<td>Mesozoic carbonate and clastic sediments</td>
<td>5.10</td>
<td>1.12</td>
<td>0.24</td>
</tr>
<tr>
<td>metamorphic rocks</td>
<td>22.02</td>
<td>4.83</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Slope [deg]</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2</td>
<td>265.64</td>
<td>58.24</td>
<td>0.58</td>
</tr>
<tr>
<td>2-5</td>
<td>119.44</td>
<td>26.18</td>
<td>6.11</td>
</tr>
<tr>
<td>5-10</td>
<td>63.89</td>
<td>14.01</td>
<td>9.10</td>
</tr>
<tr>
<td>10-15</td>
<td>6.76</td>
<td>1.48</td>
<td>1.06</td>
</tr>
<tr>
<td>15-20</td>
<td>0.39</td>
<td>0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>&gt;20</td>
<td>0.02</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Distance from watercourses [m]</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;100</td>
<td>94.58</td>
<td>20.74</td>
<td>3.61</td>
</tr>
<tr>
<td>100-250</td>
<td>115.68</td>
<td>25.36</td>
<td>6.28</td>
</tr>
<tr>
<td>250-500</td>
<td>131.92</td>
<td>28.92</td>
<td>5.32</td>
</tr>
<tr>
<td>&gt;500</td>
<td>113.96</td>
<td>24.98</td>
<td>1.67</td>
</tr>
<tr>
<td><strong>Land cover</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>discontinuous urban fabric</td>
<td>3.86</td>
<td>0.85</td>
<td>0.01</td>
</tr>
<tr>
<td>industrial or commercial units</td>
<td>1.21</td>
<td>0.27</td>
<td>0.00</td>
</tr>
<tr>
<td>mineral extraction sites</td>
<td>7.01</td>
<td>1.54</td>
<td>0.01</td>
</tr>
<tr>
<td>non-irrigated arable land</td>
<td>126.14</td>
<td>27.65</td>
<td>2.06</td>
</tr>
<tr>
<td>Land Cover Type</td>
<td>6.20</td>
<td>1.36</td>
<td>0.11</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>complex cultivation patterns</td>
<td>163.89</td>
<td>35.93</td>
<td>5.74</td>
</tr>
<tr>
<td>agricultural areas with natural vegetation</td>
<td>108.15</td>
<td>23.71</td>
<td>5.79</td>
</tr>
<tr>
<td>broad-leaved forest</td>
<td>35.36</td>
<td>7.75</td>
<td>3.10</td>
</tr>
<tr>
<td>transitional woodland-shrub</td>
<td>1.66</td>
<td>0.36</td>
<td>0.01</td>
</tr>
<tr>
<td>inland marshes</td>
<td>1.71</td>
<td>0.38</td>
<td>0.07</td>
</tr>
<tr>
<td>water bodies</td>
<td>0.96</td>
<td>0.21</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Figure 1**: Spatial distribution of parameters in the Ub Municipality:
A – lithology, B – slope, C – distance from watercourses, D – land cover

Weighted values were used to calculate LSI, and after that classification to zones of different landslide susceptibility is performed. Very high susceptibility class is present on the 14.7% of the total municipality area, and in the case of high susceptibility class that share is 12.4% (Table 2, Figure 2).

**Figure 2**: Landslide susceptibility zones in the Ub Municipality
Table 2: Landslide susceptibility zones in the Ub Municipality

<table>
<thead>
<tr>
<th>Landslide susceptibility</th>
<th>km²</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>very high</td>
<td>67.24</td>
<td>14.74</td>
</tr>
<tr>
<td>high</td>
<td>56.45</td>
<td>12.38</td>
</tr>
<tr>
<td>medium</td>
<td>114.68</td>
<td>25.14</td>
</tr>
<tr>
<td>low</td>
<td>217.77</td>
<td>47.74</td>
</tr>
<tr>
<td>total</td>
<td>456.14</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Further analysis included overlapping of the existing landslides with landslide susceptibility classes. Of total landslide area 63.4% occurred in very high susceptibility class, 27% in high susceptibility class, 8.5% in medium susceptibility class, and 1.2% in low susceptibility class. Also, known landslides occurred on 15.9% of total area of the very high susceptibility class, on 8.1% of the high susceptibility class total area, on 1.3% of the medium susceptibility class total area, and in the case of low susceptibility class that share is 0.1%. Both mentioned landslide occurrence in susceptibility classes results have shown that classification of LSI values corresponded to the situation on the terrain.

Analysis of LSI and landslide susceptibility classes data, together with known landslides location has shown were used to classify settlement territories of the Ub Municipality to four vulnerability classes. At eight settlement territories very high landslide vulnerability was determined: Kožušar, Tulari, Novaci, Pambukovica, Raduša, Slatina, Kršna Glava and Dokmir. At ten settlement territories high landslide vulnerability was determined: Vukona, Trlić, Čučuge, Vrhovine, Gvozdenović, Tvrdojevac, Zvizdar, Gunjevac, Trnjaci and Ub, which is administrative center and most populated settlement of the municipality, with population of about six thousand people. On these settlements, from the risk reduction point of view, the greatest attention should be paid in the future.

Figure 3: Landslide vulnerability of the Ub Municipality settlements territory
4. CONCLUSION

The landslide susceptibility and vulnerability assessment and zonation are very important elements of the decision making process in natural hazard management. They should represent basic items in all documents related to spatial planning and management, especially in vulnerable territories. Application of GIS in such cases is of great importance because it is the only possible way for integration and analysis of all relevant spatial data. GIS also provides a very applicable results and allows the joining of scientific research with practice. Previous events and research in the Ub Municipality shown that this territory is vulnerable to landslide occurrence, which this study have confirmed. Very high landslide susceptibility was determined on 14.7% of the total municipality area, while high landslide susceptibility have share of 12.4%. In 18 of 38 settlement territories very high or high landslide vulnerability was determined. All data obtained must be taken into account when planning further development of the municipality. It is necessary not only to conduct measures in the areas that are identified as vulnerable, but it is important to prevent conversion of areas to vulnerable by the land use change in the future.

REFERENCES


ASSESSMENT OF RISK OF TERRORIST ATTACKS BY APPLICATION OF AHP-MABAC HYBRID MODEL

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Abstract: Terrorist attacks since the beginning of the 21st century, and especially in the last decade, have shown that the threat posed by terrorism is real and serious. Although terrorist attacks are not a daily occurrence there is an increasing possibility of their occurrence. The risk assessment of hazards such as terrorist attacks implies a significant amount of indeterminacy and uncertainty. The paper presents the possibility of applying the hybrid model AHP and MABAC in assessing the risk of terrorist attacks as the basis for building a more efficient system of protection against this danger. The application of the method is done on the basis of the current Manual on the methodology for making the assessment of vulnerability from elementary and other accidents and the Emergency Response and Emergency Plans.

Key words: Terrorist attacks, risk assessment, AHP, MABAC.

1. INTRODUCTION

The human community, today, represents an arena with many factors whose security effects are uncertain in terms of time, space and consequences. Occurrences and events caused by these factors do not stop at national boundaries, do not know the time and space as a limitation. This situation brings a large number of countries and other subjects into a dilemma with a high level of uncertainty in terms of reliably assessing the risks to the safety of protected vital values. The hazard state (danger) is a state of the system with the potential to generate a negative effect on system values. Dangers are present in all systems, and the consequences are the way of building and functioning of the system. The primary goal of risk assessment is to identify the existence of elements of danger in a particular territory, to define its context and its impact, and then to determine the degree of impact, from the aspect of endangering protected values, in relation to other hazards. Upon completion of this analysis, the hazards are ranked according to the obtained sizes, from the largest to the least. On the basis of the given risk level, a decision is taken on the urgency of taking measures to reduce potential hazards. The results of the risk assessment of terrorist attacks are the inputs of the risk analysis. The assessment of the risk of terrorist attacks at the national level, at the level of local self-government and the level of companies is extremely important, as it determines the most important elements of the risk of terrorist attacks and defines measures of protection as well as the ranking of these measures according to the importance for undertaking and creating an adequate system of protection against this danger. Assessment of the risk of terrorist attacks in the Republic of Serbia is carried out at the national level in accordance with the Instructions on the methodology for making the assessment of the threat of natural and other disasters and the Emergency Response and Emergency Plans. Such an assessment provides guidelines for the development at the level of local self-governments and companies that analyze their own vulnerability. This paper presents a model for assessing the risk of terrorist attacks using the hybrid AHP-MABAC model. The AHP
method was used to obtain weight coefficients of the criteria, while the MABAC method was used to quantify the risk for defined objects - alternatives. The main goal of applying this model is to improve the existing methodology.

2. PROBLEM DESCRIPTION

The term “terrorism” is defined in a number of different ways in contemporary foreign and domestic literature, with the notion that there is no universal, generally accepted definition of this phenomenon. The term “terrorism” originates from the Latin word terror - an intense fear, horror, and French word terrera - the sowing of fear, and is a method of deliberate and systematic use of violence with the aim of developing fear in order to achieve personal, political and other ideological goals. Modern terrorism is manifested by terrorist acts that are most often realized as: armed attacks on facilities and faces and murders (so-called assassinations); Placing and activating explosive devices; Causing fire; Use of poisons, harmful gases, chemical or other dangerous substances; Hijacking of persons, vehicles, ships or aircraft, and taking hostages and kidnapping; Sending ”letter-bombs”, use of “car bombs”, “live bombs”; Threats of terrorist attack, false reports and alarms, and the like [11]. Regardless of how it is defined, the constant changes in the physiognomy of terrorism require the steady development of methods and techniques to improve the assessment of the risk of this opacity and the implementation of preventive measures. The manual on the methodology for making the assessment of the threat of natural disasters and other accidents and emergency plans of emergency protection [10] has elaborated the process of assessing the risk of terrorist attacks. In essence, the methodology as well as the current report [12] states that the process of assessing the risk of terrorist attacks is carried out in four phases: 1) risk positioning, 2) risk analysis, 3) risk evaluation, and 4) risk management [10]. One segment of risk assessment is risk management where analysis and comparison of different variants are performed. The choice of the variant defines the beginning and end of the activity, who performs the activity, where, why and how [13]. The essence of the problem is in choosing a single use option, which the decision maker (DM) will choose based on the comparison of all elaborated variants (alternatives) [1]. If take in consider the reality of terrorist attacks, the application of multi-criteria decision-making methods in assessing the risk of terrorist attacks is imposed as a need.

3. METHODS DESCRIPTION

The paper used the AHP-MABAC hybrid model where the AHP method was used to determine the weight coefficients of the criteria, and the MABAC method for ranking alternatives. The method of analytical hierarchical processes (AHP) was developed by Tomas Saaty in the early seventies of the last century and it is one tool in decision making analysis [3]. Method was designed to provide decision makers in solving complex decision-making issues involving a large number of DO, there are a number of criteria, and in several specific time periods. The field of application of the method is multi-criteria decision-making, based on the defined set of criteria and value of the attributes for each alternative, the choice of the most acceptable solution is made, that is, the complete schedule of the importance of the alternative in the model is shown. Due to the simpler application of the method, on the concrete case, software developed from the Expert Choice decision support system. Four stages of application of the method were recorded [1]:
1) structuring the problem,
2) data collection,
3) assessment of relative weights,
4) determining the solution to the problem.
Structuring the problem consists of decomposing a particular complex decision problem in a series of hierarchies, where each level represents a smaller number of managed attributes. A graphical representation of problem structuring is presented in Figure 1.

![Figure 1: Structuring the problem](image)

By collecting data and measuring them, the second phase of the AHP method begins. The decision maker assigns relative estimates to pairs of attributes of a single hierarchical level, for all levels of the entire hierarchy. The most famous scale of the nine points, presented in Table 1 is used.

**Table 1 - Scale of nine points**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Explanation / Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Absolutely the most important / most desirable</td>
</tr>
<tr>
<td>8</td>
<td>Very strong to absolutely the most important / most desirable</td>
</tr>
<tr>
<td>7</td>
<td>Very strong to very important / desirable</td>
</tr>
<tr>
<td>6</td>
<td>Strong to very strong</td>
</tr>
<tr>
<td>5</td>
<td>Stronger more significant / desirable</td>
</tr>
<tr>
<td>4</td>
<td>Slight to the more powerful</td>
</tr>
<tr>
<td>3</td>
<td>Less relevant / desirable</td>
</tr>
<tr>
<td>2</td>
<td>Equally, the weaker the more</td>
</tr>
<tr>
<td>1</td>
<td>Equally important / desirable</td>
</tr>
<tr>
<td>0.50</td>
<td>Equally to the weaker ones</td>
</tr>
<tr>
<td>0.33</td>
<td>Less important less important / desirable</td>
</tr>
<tr>
<td>0.25</td>
<td>It's weaker to much less</td>
</tr>
<tr>
<td>0.20</td>
<td>Strongly less significant / desirable</td>
</tr>
<tr>
<td>0.17</td>
<td>Powerful to very strong / lower</td>
</tr>
<tr>
<td>0.14</td>
<td>Extremely vigorously less significant / desirable</td>
</tr>
<tr>
<td>0.13</td>
<td>Very strong to absolutely less</td>
</tr>
<tr>
<td>0.11</td>
<td>Absolutely the least significant / desirable</td>
</tr>
</tbody>
</table>

Upon completion of this phase, an appropriate matching matrix is obtained by pairs corresponding to each level of the hierarchy. Relative weight estimation is the third phase of the AHP method. The comparison matrix will be “translated” by pairs into problems of determining its own values, in order to obtain normalized and unique own vectors, as well as
the weight for all attributes at each level of the hierarchy $A_1, A_2, ..., A_n$, with the weight vector $t_t(t_1, t_2, ..., t_n)$

Determining the solution to the problem is the last phase of the AHP method, and it involves finding the so-called composite normalized vector. After determining the sequence vector of the activity of the criteria in the model, in the next circle it is necessary, within each observed criterion, to determine the order of importance of the alternative in the model. Finally, the overall synthesis of the problem is carried out in the following way: the participation of each alternative is multiplied by the weight of the criterion, and then these values are summarized for each alternative separately. The obtained data represents the weight of the observed alternative in the model. In the same way, the weight is determined for all other alternatives, after which the final order of the alternatives in the model can be determined [1]. However, the paper uses a hybrid model, so instead of the last phase of the AHP method, the MABAC method will be used to rank the alternatives.

The MABAC method was developed by Pamucar and Cirovic [2]. The basic setting of the MABAC method is reflected in defining the distance of the criterion function of each observed alternative from the boundary approximation domain. In the following section, the procedure for implementing the MABAC method, relatively its mathematical formulation, consisting of 6 steps:

**Step 1. Form the initial decision matrix ($X$).** In the first step, the evaluation of $m$ alternatives according to $n$ criteria is carried out. The alternatives are represented by the vectors $A_i = (x_{i1}, x_{i2}, ..., x_{in})$ where $x_{ij}$ is the value of the $i$-th alternative according to the $j$-th criterion ($i = 1, 2, ..., m; j = 1, 2, ..., n$).

$$X = \begin{bmatrix} C_1 & C_2 & \cdots & C_n \\ A_1 & \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{11} & x_{12} & \cdots & x_{1n} \\ \vdots & \cdots & \cdots & \cdots \\ x_{1m} & x_{2m} & \cdots & x_{mn} \end{bmatrix} \\ A_2 & \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{11} & x_{12} & \cdots & x_{1n} \\ \vdots & \cdots & \cdots & \cdots \\ x_{1m} & x_{2m} & \cdots & x_{mn} \end{bmatrix} \\ \cdots & \cdots & \cdots & \cdots \\ A_m & \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{11} & x_{12} & \cdots & x_{1n} \\ \vdots & \cdots & \cdots & \cdots \\ x_{1m} & x_{2m} & \cdots & x_{mn} \end{bmatrix} \end{bmatrix}$$

where $m$ denotes the number of alternatives, $n$ denotes the total number of criteria.

**Step 2. Normalization of the initial matrix elements ($X$).**

$$N = \begin{bmatrix} C_1 & C_2 & \cdots & C_n \\ A_1 & \begin{bmatrix} t_{11} & t_{12} & \cdots & t_{1n} \\ t_{11} & t_{12} & \cdots & t_{1n} \\ \vdots & \cdots & \cdots & \cdots \\ t_{1m} & t_{2m} & \cdots & t_{mn} \end{bmatrix} \\ A_2 & \begin{bmatrix} t_{11} & t_{12} & \cdots & t_{1n} \\ t_{11} & t_{12} & \cdots & t_{1n} \\ \vdots & \cdots & \cdots & \cdots \\ t_{1m} & t_{2m} & \cdots & t_{mn} \end{bmatrix} \\ \cdots & \cdots & \cdots & \cdots \\ A_m & \begin{bmatrix} t_{11} & t_{12} & \cdots & t_{1n} \\ t_{11} & t_{12} & \cdots & t_{1n} \\ \vdots & \cdots & \cdots & \cdots \\ t_{1m} & t_{2m} & \cdots & t_{mn} \end{bmatrix} \end{bmatrix}$$

The elements of the normalized matrix ($N$) are obtained by using the expression:

**a)** For criteria of benefit type

$$t_{ij} = \frac{x_{ij} - x_{j}^-}{x_{j}^+ - x_{j}^-}$$

**b)** For criteria of spending type

$$t_{ij} = \frac{x_{ij} - x_{j}^+}{x_{j}^- - x_{j}^+}$$
where $x_{ij}$, $x_{ij}^+$, and $x_{ij}^-$ represent the elements of the initial decision matrix ($X$), where $x_{ij}^+$ and $x_{ij}^-$ are defined as:

$x_{ij}^+ = \max (x_{i1}, x_{i2}, \ldots, x_{im})$ and represents the maximum values of the observed criterion for alternatives.

$x_{ij}^- = \min (x_{i1}, x_{i2}, \ldots, x_{im})$ min and represents the minimum values of the observed criterion for alternatives.

**Step 3. Calculation of the elements of the difficult matrix ($V$).**

Step 3. Calculation of the elements of the difficult matrix ($V$).

\[
V = \begin{bmatrix}
  v_{11} & v_{12} & \cdots & v_{1n} \\
  v_{21} & v_{22} & \cdots & v_{2n} \\
  \vdots & \vdots & \ddots & \vdots \\
  v_{m1} & v_{m2} & \cdots & v_{mn}
\end{bmatrix}
\] (5)

The elements of the difficult matrix ($V$) are calculated from the expression (6):

\[v_{ij} = w_i t_{ij} + w \] (6)

where $ij$ represents the elements of the normalized matrix ($N$), and $w$ represents the weight coefficients of the criterion.

Applying the expression (6) gives a difficult matrix $V$, which can be otherwise written as:

\[
V = \begin{bmatrix}
  w_1 t_{11} + w_1 & w_2 t_{12} + w_2 & \cdots & w_n t_{1n} + w_n \\
  w_1 t_{21} + w_1 & w_2 t_{22} + w_2 & \cdots & w_n t_{2n} + w_n \\
  \vdots & \vdots & \ddots & \vdots \\
  w_1 t_{m1} + w_1 & w_2 t_{m2} + w_2 & \cdots & w_n t_{mn} + w_n
\end{bmatrix}
\] (7)

where $n$ represents the total number of criteria, $m$ represents the total number of alternatives.

**Step 4. Determination of the matrix of the boundary approximation domains ($G$).**

The boundary approximation area (GAO) for each criterion is determined by expression (8)

\[G_i = \left( \prod_{j=1}^{m} v_{ij}^r \right)^{1/m} \] (8)

where $v_{ij}$ represents elements of the difficult matrix ($V$), $m$ represents the total number of alternatives.

After calculating the values $i^g$ according to the criteria, the matrix of the boundary approximate fields $G$ (9) of the format $n \times 1$ ($n$ represents the total number of criteria by which the offered alternatives are selected) is formed.
The distance to the alternative from the boundary approximation region \( q_{ij} \) is determined as the difference between the elements of the difficult matrix \( V \) and the boundary approximate domain values \( G \).

\[ Q = V - G \]  \hspace{1cm} (11)

The distance to the alternative from the boundary approximation region \( q_{ij} \) is determined as the difference between the elements of the difficult matrix \( V \) and the boundary approximate domain values \( G \).

\[ Q = \begin{bmatrix} q_{11} & q_{12} & \cdots & q_{1n} \\ q_{21} & q_{22} & \cdots & q_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ q_{m1} & q_{m2} & \cdots & q_{mn} \end{bmatrix} \]  \hspace{1cm} (10)

where \( g_i \) is the boundary approximation area for the criterion \( c_i \), \( v_{ij} \) represents the elements of the difficult matrix \( V \), \( n \) represents the number of criteria, \( m \) represents the number of alternatives.

Alternative \( A_i \) can belong to the boundary approximative domain \( G \), to the upper approximating domain \( G^+ \) or to the lower approximating region \( G^- \), that is, \( A_i \in \{ G \vee G^+ \vee G^- \} \). The upper approximating region \( G^+ \) is the area in which the ideal alternative \( A^+ \) is located, while the lower approximating region \( G^- \) is an area in which an anti-ideal alternative \( A^- \) is present (Figure 2).

\[ Q = \begin{bmatrix} v_{11} - g_1 & v_{12} - g_2 & \cdots & v_{1n} - g_n \\ v_{21} - g_1 & v_{22} - g_2 & \cdots & v_{2n} - g_n \\ \vdots & \vdots & \ddots & \vdots \\ v_{m1} - g_1 & v_{m2} - g_2 & \cdots & v_{mn} - g_n \end{bmatrix} \]  \hspace{1cm} (12)

**Figure 2:** Display of the upper \( (G^+) \), lower \( (G^-) \) and boundary \( (G) \) approximation areas [2]
The relation of the alternative \( A_i \) to the approximate domain \((G, G^+ \text{ or } G^-)\) is determined on the basis of expression (13)

\[
A_i \in \begin{cases} 
G^+ & \text{if } q_{ij} > 0 \\
G & \text{if } q_{ij} = 0 \\
G^- & \text{if } q_{ij} < 0 
\end{cases} \tag{13}
\]

In order for the alternative \( A_i \) to be chosen as the best from the set, it is necessary that as a number of criteria belongs to the upper approximation domain \((G^+)\).

**Step 6. Ranking alternatives.**
The calculation of the values of the criterion functions by alternatives (14) is obtained as the sum of the distance of the alternatives from the boundary approximate fields \((i, q)\). By summarizing elements of the \( Q \) matrix, the final values of the criterion functions of the alternative are obtained

\[
S_i = \sum_{j=1}^{n} q_{ij}, j = 1, 2, \ldots, n, \quad i = 1, 2, \ldots, m \tag{14}
\]

where \( n \) represents the number of criteria, \( m \) represents the number of alternatives.

4. **APPLICATION OF THE METHOD AND EXPRESSION OF RESULTS**

The basic idea of the AHP method is to apply it in group decision-making, but its application is also possible in individual decision-making.

Prior to applying the method, the basic criteria on the basis of which risk assessment is carried out are defined. The risk assessment criteria in this model were taken from [12], and adapted for a specific problem. The basic criteria for assessing the risk of terrorist attacks are [12]:

- Criterion 1 \((k_1)\) - the likelihood of a terrorist attack. This criterion assesses to what extent it is possible to cause harm / negative consequences, or to manifest a certain danger, in this case a terrorist attack.
- Criterion 2 \((k_2)\) - system state. Under this criterion, the state of the system in relation to terrorist attacks is understood. In other words, the vulnerability of the system is considered, as well as the assessment of the possibility of opposing the system in the event of terrorist attacks.
- Criterion 3 \((k_3)\) - negative consequences. These criteria include the human and material losses that a terrorist attack can cause.
- Criterion 4 \((k_4)\) - the possibility of generating other hazards.

Based on the existing methodology, the size of the dangers of the given criteria is ranked according to Table 2.

**Table 2: Size of the risk of the criteria**

<table>
<thead>
<tr>
<th>Size</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very small</td>
<td>1</td>
</tr>
<tr>
<td>Small</td>
<td>2</td>
</tr>
<tr>
<td>Middle</td>
<td>3</td>
</tr>
<tr>
<td>Big</td>
<td>4</td>
</tr>
<tr>
<td>Very big</td>
<td>5</td>
</tr>
</tbody>
</table>
The consistency index is then determined as a measure of the consistency of the deviations which should be less than 0.10 because it is thus a satisfactory measure that proves that the estimates are consistent and that the particular value is close to the ideal value to be estimated [1]. The consistency index is shown in Table 3.

**Table 3: Consistency index**

<table>
<thead>
<tr>
<th>CONSISTENCY CONVERSION - CR</th>
<th>b</th>
<th>b/w</th>
<th>l max</th>
<th>CI</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.16</td>
<td>4.02</td>
<td>4.02</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>0.62</td>
<td>4.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.92</td>
<td>4.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.33</td>
<td>4.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After defining the criteria and consistency index, the conditions for applying the AHP method have been met. The first step is to define matrices of benchmarking in pairs as shown in Table 4.

**Table 4: Comparison of criteria in pairs**

<table>
<thead>
<tr>
<th></th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>1.00</td>
<td>2.00</td>
<td>0.50</td>
<td>4.00</td>
</tr>
<tr>
<td>K2</td>
<td>0.50</td>
<td>1.00</td>
<td>0.33</td>
<td>2.00</td>
</tr>
<tr>
<td>K3</td>
<td>2.00</td>
<td>3.00</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>K4</td>
<td>0.25</td>
<td>0.50</td>
<td>0.20</td>
<td>1.00</td>
</tr>
</tbody>
</table>

By using the AHP method, the weighting coefficients of the criteria are shown in Table 5.

**Table 5: Criterion weights**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Criterion weights</th>
<th>Weight coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>2</td>
<td>0.28</td>
</tr>
<tr>
<td>K2</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>K3</td>
<td>1</td>
<td>0.47</td>
</tr>
<tr>
<td>K4</td>
<td>4</td>
<td>0.08</td>
</tr>
</tbody>
</table>

After obtaining weight vectors, the MABAC method determines the choice of the best possible alternative. The next step is to evaluate the alternatives, relatively select the most favorable one from a set of possible solutions. In the abstract example of ten alternatives, using the MABAC method, the results are shown in Tables 6, 7, 8, 9, 10 and 11.

**Table 6: Starting matrix of decision making**

<table>
<thead>
<tr>
<th></th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>A2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>A3</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>A4</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>A5</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A6</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>A7</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>A8</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A9</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>A10</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 7: Normalized decision matrix

<table>
<thead>
<tr>
<th>Criterion</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>0.00</td>
<td>1.00</td>
<td>0.75</td>
<td>0.25</td>
</tr>
<tr>
<td>A2</td>
<td>0.00</td>
<td>0.75</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>A3</td>
<td>0.25</td>
<td>0.25</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>A4</td>
<td>0.50</td>
<td>0.50</td>
<td>1.00</td>
<td>0.25</td>
</tr>
<tr>
<td>A5</td>
<td>0.00</td>
<td>0.75</td>
<td>0.25</td>
<td>0.50</td>
</tr>
<tr>
<td>A6</td>
<td>0.50</td>
<td>0.00</td>
<td>0.00</td>
<td>0.75</td>
</tr>
<tr>
<td>A7</td>
<td>0.75</td>
<td>0.50</td>
<td>0.50</td>
<td>0.75</td>
</tr>
<tr>
<td>A8</td>
<td>1.00</td>
<td>1.00</td>
<td>0.25</td>
<td>0.50</td>
</tr>
<tr>
<td>A9</td>
<td>0.00</td>
<td>0.00</td>
<td>0.75</td>
<td>0.00</td>
</tr>
<tr>
<td>A10</td>
<td>0.50</td>
<td>0.25</td>
<td>0.50</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Table 8: Difficult decision-making matrix

<table>
<thead>
<tr>
<th>Criterion</th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>0.29</td>
<td>0.31</td>
<td>0.83</td>
<td>0.10</td>
</tr>
<tr>
<td>A2</td>
<td>0.29</td>
<td>0.27</td>
<td>0.95</td>
<td>0.08</td>
</tr>
<tr>
<td>A3</td>
<td>0.36</td>
<td>0.19</td>
<td>0.48</td>
<td>0.16</td>
</tr>
<tr>
<td>A4</td>
<td>0.43</td>
<td>0.23</td>
<td>0.95</td>
<td>0.10</td>
</tr>
<tr>
<td>A5</td>
<td>0.29</td>
<td>0.27</td>
<td>0.59</td>
<td>0.12</td>
</tr>
<tr>
<td>A6</td>
<td>0.43</td>
<td>0.15</td>
<td>0.48</td>
<td>0.14</td>
</tr>
<tr>
<td>A7</td>
<td>0.50</td>
<td>0.23</td>
<td>0.71</td>
<td>0.14</td>
</tr>
<tr>
<td>A8</td>
<td>0.58</td>
<td>0.31</td>
<td>0.59</td>
<td>0.12</td>
</tr>
<tr>
<td>A9</td>
<td>0.29</td>
<td>0.15</td>
<td>0.83</td>
<td>0.08</td>
</tr>
<tr>
<td>A10</td>
<td>0.43</td>
<td>0.19</td>
<td>0.71</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Table 9: Matrix GAO

<table>
<thead>
<tr>
<th></th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.288398</td>
<td>0.154445</td>
<td>0.475835</td>
<td>0.081321</td>
</tr>
<tr>
<td>max</td>
<td>min</td>
<td>max</td>
<td>max</td>
<td></td>
</tr>
<tr>
<td>0.38</td>
<td>0.23</td>
<td>0.69</td>
<td>0.12</td>
<td></td>
</tr>
</tbody>
</table>

Table 10: Distance matrix from GAO

<table>
<thead>
<tr>
<th></th>
<th>K1</th>
<th>K2</th>
<th>K3</th>
<th>K4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>-0.09</td>
<td>0.08</td>
<td>0.14</td>
<td>-0.02</td>
</tr>
<tr>
<td>A2</td>
<td>-0.09</td>
<td>0.05</td>
<td>0.26</td>
<td>-0.04</td>
</tr>
<tr>
<td>A3</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.22</td>
<td>0.04</td>
</tr>
<tr>
<td>A4</td>
<td>0.06</td>
<td>0.01</td>
<td>0.26</td>
<td>-0.02</td>
</tr>
<tr>
<td>A5</td>
<td>-0.09</td>
<td>0.05</td>
<td>-0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>A6</td>
<td>0.06</td>
<td>-0.07</td>
<td>-0.22</td>
<td>0.02</td>
</tr>
<tr>
<td>A7</td>
<td>0.13</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>A8</td>
<td>0.20</td>
<td>0.08</td>
<td>-0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>A9</td>
<td>-0.09</td>
<td>-0.07</td>
<td>0.14</td>
<td>-0.04</td>
</tr>
<tr>
<td>A10</td>
<td>0.06</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Table 11: Rank of the alternative

<table>
<thead>
<tr>
<th>value Si</th>
<th>Rank of the alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1  0.117</td>
<td>5</td>
</tr>
<tr>
<td>A2  0.177</td>
<td>4</td>
</tr>
<tr>
<td>A3  -0.222</td>
<td>10</td>
</tr>
<tr>
<td>A4  0.303</td>
<td>1</td>
</tr>
<tr>
<td>A5  -0.139</td>
<td>8</td>
</tr>
<tr>
<td>A6  -0.209</td>
<td>9</td>
</tr>
<tr>
<td>A7  0.178</td>
<td>3</td>
</tr>
<tr>
<td>A8  0.188</td>
<td>2</td>
</tr>
<tr>
<td>A9  -0.057</td>
<td>7</td>
</tr>
<tr>
<td>A10 0.088</td>
<td>6</td>
</tr>
</tbody>
</table>

The results from Table 11 were generated using the MABAC method and indicate that the alternative A4 is ranked as the first, respectively alternative A3 as the last one, which is the most unfavorable.

5. CONCLUSION

In this paper is presented the implementation of the AHP-MABAC hybrid model for assessing the risk of terrorist attacks, based on all of the above, and it can be concluded that these methods can assess the risk of terrorist attacks in a particular territory successfully. This also means that, based on the existing methodology, the data necessary for defining the criteria and the formation of an alternative arises which enables the successful application of this hybrid method to the field of emergency situations in practice. This improves the data methodology and enables its more efficient practical application.

LITERATURE


FUZZY LOGIC SYSTEM FOR RANKING CHALLENGES, RISKS AND THREATS

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Abstract: This paper presents a model based on a fuzzy logic system that evaluates challenges, risks and threats. Defining challenges, risks and threats is followed by a lot of uncertainty and indeterminacy, which is successfully incorporated into the model by using the fuzzy logic. The model is in function of support and decision making in the development of strategic and doctrinal documents in the field of security and defense.

Keywords: fuzzy logic system, challenges, risks, threats.

1. DESCRIPTION OF THE PROBLEM

The importance of studying problematic challenges, risks and threats (CRT) lies in their role in drafting strategic and doctrinal documents in the field of security and defense. Challenges, risks and threats are one of the unavoidable factors for the development of these documents, and their assessment is one of the initial stages of their development [11]. The CRT assessment defines the contents of the basic strategic and doctrinal documents in the field of security and defense (National Security Strategy of the Republic of Serbia, Defense Strategy of the Republic of Serbia and Doctrine of the Army of Serbia)⁶⁰, as well as planning documents such as: Long-term plan for the development of the defense system of the Republic of Serbia, Strategic review of the defense and a Defense Plan for the Republic of Serbia [19]. Based on the National Security Strategy, as a system of complementary norms, the national security system is constituted. It is the basis for the integrated functioning of the security forces [12]. On the basis of the Defense Strategy (and other laws), the defense system (dimensioning of forces, financing, modernization, etc.) is constituted, and on the basis of military doctrine, military activity is organized [12].

This points to the importance of a more precise definition of CRT security, because an inaccurate prediction could lead to the inability of an adequate response when one of the CRTs is exposed to reference security objects.⁶¹ For this reason, the possibility of developing an appropriate model, which would later be promoted, is of great importance in order to

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⁶⁰ The documents are listed by the hierarchy characteristic of the Republic of Serbia. In practice and theory there are differences in understanding the hierarchy of documents and their content with domestic and foreign authors, but the assessment of challenges, risks and threats is an indispensable component of any approach.

⁶¹ According to Simic [18], the security of the reference object is determined by the relationship between threats and the possibility of responding to threats.
impart a more impartial definition of all three occurrences of threats to security, or to eliminate subjectivity to a greater extent. This is especially important because state leadership significantly influences the formation of key statements in strategic documents [12], and it is known that "In the first place, the elites, first and foremost, protect the values that they classify or the group to which they belong to the heart, ... in order to represent their specific values as national "[7]. In support of the stated Brauch [3] emphasizes that CRT’s perception depends on the world view of analysts and political decision-makers.

2. CHALLENGES, RISKS AND THREATS

As is the case with most of the concepts in social sciences, so are the CRTs, and despite the large number of attempts, the other concepts around whose definition there is no consensus. The description of these concepts depended on the period when it is done, the actors who do it, the needs for which it is done, the type of scientific / professional approach, and so on. The starting point for successfully defining and classifying contemporary challenges, risks and threats in security studies is defining reference objects - what is protected. For this context, two reference objects, the state (and sovereignty) on the one hand and the individual (society), and its identity on the other side, are crucial [14]. Both reference objects are important for considering the problem, because if the state loses its sovereignty, it ceases to be a state, and if society loses its identity, it can not survive as a society [17]. Other reference objects are less relevant for the consideration of this issue, or they can be viewed through the previously defined ones.

The occurrence of security is most often associated with danger for authors who deal with this issue, which is further transmitted into the conceptual definition of challenges, risks and threats. Thus, Dimitrijevic [7] defines danger as an increased risk, which equates with the possibility of damage (the value part). He also points out the other part (cognitive) that refers to the likelihood that the damage will occur.

Orlic [14] under challenges implies possible potential forms of endangering the stability and sovereignty of the state and the identity of the individual and society. Under the risks, he implies "closer and more clearly measurable forms of endangering the sovereignty and identity of the state and society," while under threat it implies "direct forms of endangering the state and society." While the challenge is worth neutral for the state and society, the risks and threats have a negative sign and can come from one another. In the case of risk, there is a possibility to avoid negative consequences for the security of the reference object, while the threats have clear, foreseeable and certain forms of endangerment [14]. A similar gradation of CRT is made by Tatomir [19].

The Risk Management area has a different perception of challenges, risks and threats. It sees "risk" as a central notion, which, depending on the author's understanding and ultimate purpose, has different definitions. More can be seen in [2, 9, 10].

By analyzing the available literature, two approaches can be distinguished. The first, security, which is characterized by the binding of CRT for the degree of danger. Thus, the challenge is related to the very low degree of danger per reference object, where it is possible to redirect the challenge to certain positive reactions in the second, positive direction. The risk is associated with a higher degree of danger per reference object, but with the emphasis that the operation of this danger is still not certain, but that the danger exists in a certain percentage. In the end, the threat is almost certain that requires immediate response. This can

62 Depending on the reaction to the challenge, it can have a positive sign, when the reaction comes to an end or a negative sign by switching to risk or threat [14].
Another approach - risk management as a central concept is at risk, while the threat is usually seen as something that can influence the degree of risk to increase. Thus, the threat is presented as one, but not the only factor that influences the risk assessment. In the same way as in the previous picture, it is possible to define the risk (Figure 2). In this case, the key element is to determine the degree of risk admissibility.

In a certain context, it is possible to notice the similarities between the security approach and the risk management approach (eg aut.), So the question may arise as to whether it is a terminological problem or the concepts are really different. To define the model, relying on the security terminology, findings from both areas will be used.

3. FUZZY LOGICAL SYSTEMS
Fuzzy logic systems represent models based on fuzzy logic and fuzzy sets. More on these areas can be found in works [6, 15, 20, 22]. The general appearance of the model that is best shown in the work can be described in Figure 3.
A detailed description of the operation of the fuzzy logic system can be found in [15, 16]. Bearing in mind that the model will never be a faithful image of reality [6], so this model will only be helpful to decision makers. Accordingly, decision makers will in certain situations, regardless of the decision-making preference, make their decisions that do not have to agree with the data obtained at the exit of the model.

4. DESIGN OF FUZZY LOGICAL SYSTEM

A description of the input parameters/criteria has been made through this section, in the shortest terms, and here’s the way how to create and adjust the fuzzy logic system. This section is the focus of the paper.

4.1. Defining input parameters

By analyzing literature [1, 4, 7, 8, 10, 11, 13, 19, 21], the separation of the four key elements is carried out - the pulse parameters that influence the definition of the CRT:
K1 - possible consequences or damages - through this criterion, the consequences of a certain danger can be caused: human, material, system disorders, etc.
K2 - probability of occurrence - through this criterion, it is considered to what extent it is possible that the damage / consequences will arise and
K3 - state of the system - through this criterion the state of the system is considered in relation to the potential danger. This criterion also includes an assessment of the possibility of opposing the system in the event of a hazard, as well as the vulnerability of the system in relation to the observed occurrence.
K4 - subjective aspect or perception of occurrence as a danger to the professional and general public. The previous three criteria rely on materialistic logic (rationalistic approach to security), but reality has shown that certain occurrences are perceived as threats regardless of their actual state (socioconstructivist approach to security). Subjective perception of CRT is not a new category and it is an important element of this problem, and in addition to this, Buzan et al. [5], Dimitrijevic [7] and Kekovic et al. [10]. Accordingly, this criterion will describe how the observed occurrence is experienced in the public domain.
A set of input criteria $K_i$ ($i = 1,2,3,4$) consists of two subgroups:
- $K^+$ - a subset of the criteria of a favorable type which means that a higher value of the criteria is more preferable, ie, better (criterion K3) and

- $K^-$ - a subset of the cost-type criteria, which means that the lower value is preferable, ie, better (criterion K1, K2 and K4).

All criteria are of a linguistic character, so different linguistic scales can be used in the paper. In this paper a three-step linguistic scale was used. A scale with a large number of linguistic expressions would increase the sensitivity of the model.

4.2. Creating and configuring the fuzzy logic system

Models based on fuzzy logic usually require more iterations. In the first circle, a set of rules and corresponding functions of affiliation are defined. After reviewing the obtained results, correction of individual rules and / or membership functions is carried out, if necessary. Then, the modified rules and / or functions of the affiliation model are again tested. The selection of membership functions and their range in the confidence interval is a very important stage in model design. In this fuzzy system, Gaussian curves are selected, since they are easy to manipulate when setting the output. Input variables are described with three functions of belonging, while the output is described with five functions of affiliation. The confidence interval for each input as well as for the output variable is the numerical interval from 0 to 1. Figures 4 and 5 show the functions of belonging to the input and output linguistic variables.

![Figure 4: The functions of belonging to the input linguistic variables.](image)

The output linguistic variable is shown in Figure 5.
Since four input variables \( n = 4 \) with three linguistic values \( M = 3 \) are defined, a rule base is formed from a total of \( M^n = 3^4 = 81 \) rules. For the created model, the PROD-SUM method of direct conclusion was used. By choosing this method and adjusting the functionality of the solution, we obtained an acceptable shape, Figure 6.

**Figure 5:** Functions belonging to the output variable

**Figure 6.** A graphic representation of a set of possible solutions
For the defuzzification method, the center of gravity method was selected, as the usual and suitable for making such a fuzzy system. This method is selected because it ensures the necessary continuity and gradual output.

5. TESTING FUZZY LOGICAL SYSTEM

Testing, and then practical application are the logical phases in the life cycle of the model. When the model is tested, certain corrections, alterations or improvements are made as needed. For testing this model, four occurrence were selected, Table 1.

Table 1: Description of the occurrence for testing the fuzzy logic system

<table>
<thead>
<tr>
<th>Name of occurrence</th>
<th>Possible consequences</th>
<th>The probability of occurrence</th>
<th>System status</th>
<th>Perception of the occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>The armed aggression</td>
<td>High</td>
<td>Small</td>
<td>Medium</td>
<td>Negligible</td>
</tr>
<tr>
<td>The proliferation of weapons of mass destruction</td>
<td>Medium</td>
<td>Medium</td>
<td>Bad</td>
<td>Negligible</td>
</tr>
<tr>
<td>Energy problems</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Problems of economic development</td>
<td>High</td>
<td>Medium</td>
<td>Bad</td>
<td>High</td>
</tr>
</tbody>
</table>

Following the application of the model, the results are shown in Table 2.

Table 2: Preference for decision

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Preference for decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>The armed aggression</td>
<td>0.56</td>
</tr>
<tr>
<td>The proliferation of weapons of mass destruction</td>
<td>0.55</td>
</tr>
<tr>
<td>Energy problems</td>
<td>0.67</td>
</tr>
<tr>
<td>Problems of economic development</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Based on the preference of the decision, it is possible to rank events according to the degree of danger and define the challenges, risks and threats. This definition can be performed over a scale that could have the following values: preference value up to 0.30 - challenges, preference value from 0.31 to 0.80 - risks and preference value over 0.81 threats (suggestion by the author). In this case, the problems of economic development pose a threat to the reference facilities of the security of the Republic of Serbia, while the other three occurrences pose risks, with energy problems being a risk with a high degree of danger (a potential threat). The scale can be defined differently depending on the perception of analysts who do this, the current state of the occurrence, and similar.

63 The occurrences are described on the basis of the perception and knowledge of the author, primarily due to the testing of the model. For reliable estimates for each criterion, it is necessary to collect information on the field as well as the knowledge of experts dealing with this area and who should participate in the preparation of strategic and doctrinal documents.
6. CONCLUSION

Model testing has shown that the fuzzy logic can be used on the problem described. Thus, successful ranking of the offered options was performed, which simplifies making a final decision regarding the definition of CRT security. This is especially important when it is known that the described problem is only part of the set of decisions that decision makers should formulate. The introduction of the model saves the time needed to make a decision and reduces the strain of the decision-maker. Also, the possible inexperience of the decision maker can be mitigated, as the model instructs decision-makers to think in a particular direction.

By developing a fuzzy model, the CRT definition strategy is transformed into an automated control strategy. This model, based on the analysis of texts and the experience of the author, is only an initial view of potential possibilities of using fuzzy logic in this field, while the performance of the developed system will depend directly on the number of experienced persons involved in the research and development of the system, as well as the ability of analysts to formulate a decision strategy after long communication with them. Also, the developed fuzzy system could be successfully improved by mapping into an adaptive neural network that has the ability to learn.

REFERENCES


INFORMATION SECURITY WITH REGARD TO THE NEW LAW AND STANDARDS IN THE REPUBLIC OF SERBIA

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Abstract: Nowadays one of the biggest challenges is how to find an answer to the contemporary security challenges in the field of ICT (information and communication technologies). This paper offers an answer to this question, but only from one aspect, taking into account the response offered by ICT standards. In the last few years, the work on the development of standards in this field has been intensified, and already adopted standards are revised as a new edition. Standardization in this area is done by the Joint Technical Committee of ISO / IEC JTC 1, Information technology, and its subcommittee SC 2, IT security techniques. Among these documents is a series of standards ISO / IEC 27000, which total about 40. This paper will be about this series of standards, as well as the Law on Information Security adopted in the Republic of Serbia.

Key words: information security, standards, data protection

1. INTRODUCTION

Through the use of the ISMS (Information security management systems) family of standards, organizations can develop and implement a framework for managing the security of their information assets including financial information, intellectual property, and employee details, or information entrusted to them by customers or third parties. These standards can also be used to prepare for an independent assessment of their ISMS applied to the protection of information.

2. WHAT IS AN ISMS?

An Information Security Management System (ISMS) consists of the policies, procedures, guidelines, and associated resources and activities, collectively managed by an organization, in the pursuit of protecting its information assets. An ISMS is a systematic approach for establishing, implementing, operating, monitoring, reviewing, maintaining and improving an organization’s information security to achieve business objectives. It is based upon a risk assessment and the organization’s risk acceptance levels designed to effectively treat and manage risks. Analysing requirements for the protection of information assets and applying appropriate controls to ensure the protection of these information assets, as required, contributes to the successful implementation of an ISMS. The following fundamental principles also contribute to the successful implementation of an ISMS. Information represents certain assets that, like other important business assets, are essential for the business of an organization, and therefore it is necessary to adequately protect them. Information can be stored in many forms, including: digital format (eg files stored on
electronic or optical media), material formats (e.g., paper), as well as unprocessed information in the form of knowledge of employees. Any form that the information has or the means through which they are transmitted, they should always be adequately protected. Information in many organizations depends on information and communication technologies. This technology is often an essential element in any organization and helps to facilitate the creation, processing, storage, transmission, protection and destruction of information.

3. INFORMATION SECURITY

Information security ensures the confidentiality, availability and integrity of information. Information security involves the application and management of appropriate controls that involves consideration of a wide range of threats, with the aim of ensuring sustained business success and continuity, and minimizing consequences of information security incidents. Information security is achieved through the implementation of an applicable set of controls, selected through the chosen risk management process and managed using an ISMS, including policies, processes, procedures, organizational structures, software and hardware to protect the identified information assets. These controls need to be specified, implemented, monitored, reviewed and improved where necessary, to ensure that the specific information security and business objectives of the organization are met. Relevant information security controls are expected to be seamlessly integrated with an organization’s business processes.

4. WHY AN ISMS IS IMPORTANT?

In an interconnected world, information and related processes, systems, and networks constitute critical business assets. Organizations and their information systems and networks face security threats from a wide range of sources, including computer-assisted fraud, espionage, sabotage, vandalism, fire and flood. Damage to information systems and networks caused by malicious code, computer hacking, and denial of service attacks have become more common, more ambitious, and increasingly sophisticated. An ISMS is important to both public and private sector businesses. In any industry, an ISMS is an enabler that supports e-business and is essential for risk management activities. The interconnection of public and private networks and the sharing of information assets increase the difficulty of controlling access to and handling of information. In addition, the distribution of mobile storage devices containing information assets can weaken the effectiveness of traditional controls. When organizations adopt the ISMS family of standards, the ability to apply consistent and mutually-recognizable information security principles can be demonstrated to business partners and other interested parties. Information security is not always taken into account in the design and development of information systems. Further, information security is often thought of as being a technical solution. However, the information security that can be achieved through technical means is limited, and may be ineffective without being supported by appropriate management and procedures within the context of an ISMS. Integrating security into a functionally complete information system could be difficult and costly. An ISMS involves identifying which controls are in place and requires careful planning and attention to detail. As an example, access controls, which may be technical (logical), physical, administrative (managerial) or a combination, provide a means to ensure that access to information assets is authorized and restricted based on the business and information security requirements.
5. ESTABLISHING, MONITORING, MAINTAINING AND IMPROVING AN ISMS

An organization needs to undertake the following steps in establishing, monitoring, maintaining and improving its ISMS:

a) identify information assets and their associated information security requirements;
b) assess information security risks and treat information security risks;
c) select and implement relevant controls to manage unacceptable risks;
d) monitor, maintain and improve the effectiveness of controls associated with the organization’s information assets.

To ensure the ISMS is effectively protecting the organization’s information assets on an ongoing basis, it is necessary for steps (a) to (d) to be continually repeated to identify changes in risks or in the organization’s strategies or business objectives.

6. ASSESSING INFORMATION SECURITY RISKS

Managing information security risks requires a suitable risk assessment and risk treatment method which may include an estimation of the costs and benefits, legal requirements, the concerns of stakeholders, and other inputs and variables as appropriate. Risk assessments should identify, quantify, and prioritize risks against criteria for risk acceptance and objectives relevant to the organization. The results should guide and determine the appropriate management action and priorities for managing information security risks and for implementing controls selected to protect against these risks.

Risk assessment should include the systematic approach of estimating the magnitude of risks (risk analysis) and the process of comparing the estimated risks against risk criteria to determine the significance of the risks (risk evaluation). Risk assessments should be performed periodically to address changes in the information security requirements and in the risk situation, for example in the assets, threats, vulnerabilities, impacts, the risk evaluation, and when significant changes occur. These risk assessments should be undertaken in a methodical manner capable of producing comparable and reproducible results. The information security risk assessment should have a clearly defined scope in order to be effective and should include relationships with risk assessments in other areas, if appropriate.

7. SELECTING AND IMPLEMENTING CONTROLS

Once information security requirements have been identified, information security risks to the identified information assets have been determined and assessed and decisions for the treatment of information security risks have been made, then selection and implementation of controls for risk reduction apply. Controls should ensure that risks are reduced to an acceptable level taking the following into account:

a) requirements and constraints of national and international legislation and regulations;
b) organizational objectives;
c) operational requirements and constraints;
d) their cost of implementation and operation in relation to the risks being reduced, and remaining proportional to the organization’s requirements and constraints;
e) their objectives to monitor, evaluate and improve the efficiency and effectiveness of information security controls to support the organization’s aims. The selection and implementation of controls should be documented within a statement of applicability to assist with compliance requirements;
f) the need to balance the investment in implementation and operation of controls against the loss likely to result from information security incidents.

The controls specified in ISO/IEC 27002 are acknowledged as best practices applicable to most organizations and readily tailored to accommodate organizations of various sizes and complexities. Other standards in the ISMS family of standards provide guidance on the selection and application of ISO/IEC 27002 controls for the information security management system. Information security controls should be considered at the systems and projects requirements specification and design stage. Failure to do so can result in additional costs and less effective solutions, and maybe, in the worst case, inability to achieve adequate security. Controls can be selected from ISO/IEC 27002 or from other control sets, or new controls can be designed to meet the specific needs of the organization. It is necessary to recognize that some controls may not be applicable to every information system or environment, and might not be practicable for all organizations. Sometimes it takes time to implement a chosen set of controls and during that time the level of risk may be higher than can be tolerated on a long-term basis. Risk criteria should cover tolerability of risks on a short-term basis while controls are being implemented. Interested parties should be informed of the levels of risk that are estimated or anticipated at different points in time as controls are progressively implemented. It should be kept in mind that no set of controls can achieve complete information security. Additional management actions should be implemented to monitor, evaluate and improve the efficiency and effectiveness of information security controls to support the organization’s aims. The selection and implementation of controls should be documented within a statement of applicability to assist with compliance requirements.

8. CONTINUAL IMPROVEMENT

The aim of continual improvement of an ISMS is to increase the probability of achieving objectives concerning the preservation of the confidentiality, availability and integrity of information. The focus of continual improvement is seeking opportunities for improvement and not assuming that existing management activities are good enough or as good as they can. Actions for improvement include the following:

a) analysing and evaluating the existing situation to identify areas for improvement;
b) establishing the objectives for improvement;
c) searching for possible solutions to achieve the objectives;
d) evaluating these solutions and making a selection;
e) implementing the selected solution;
f) measuring, verifying, analysing and evaluating results of the implementation to determine that the objectives have been met;
g) formalizing changes.

Results are reviewed, as necessary, to determine further opportunities for improvement. In this way, improvement is a continual activity, i.e. actions are repeated frequently. Feedback from customers and other interested parties, audits and review of the information security management system can also be used to identify opportunities for improvement.

9. BENEFITS OF THE ISMS FAMILY OF STANDARDS

The benefits of implementing an ISMS will primarily result from a reduction in information security risks (i.e. reducing the probability of, and/or impact caused by, information security incidents). Specifically, benefits realized for an organization to achieve sustainable success from the adoption of the ISMS family of standards include the following:
a) a structured framework supporting the process of specifying, implementing, operating and maintaining a comprehensive, cost-effective, value creating, integrated and aligned ISMS that meets the organization’s needs across different operations and sites;
b) assistance for management in consistently managing and operating in a responsible manner their approach towards information security management, within the context of corporate risk management and governance, including educating and training business and system owners on the holistic management of information security;
c) promotion of globally-accepted good information security practices in a non-prescriptive manner, giving organizations the latitude to adopt and improve relevant controls that suit their specific circumstances and to maintain them in the face of internal and external changes;
d) provision of a common language and conceptual basis for information security, making it easier to place confidence in business partners with a compliant ISMS, especially if they require certification against ISO/IEC 27001 by an accredited certification body;
e) increase in stakeholder trust in the organization;
f) satisfying societal needs and expectations;
g) more effective economic management of information security investments.

10. ISMS FAMILY OF STANDARDS

The ISMS family of standards consists of inter-related standards, already published or under development, and contains a number of significant structural components. These components are focused upon normative standards describing ISMS requirements (ISO/IEC 27001), certification body requirements (ISO/IEC 27006) for those certifying conformity with ISO/IEC 27001. Other standards provide guidance for various aspects of an ISMS implementation, addressing a generic process as well as sector-specific guidance.

Table 1: Relationships between the ISMS family of standards

11. LAW ON INFORMATION SECURITY

The Law on Information Security (“Official Gazette of the Republic of Serbia”, No. 6/16) was passed in 2016 in the Republic of Serbia. The Law basically relies on the philosophy of
the ISO/IEC 27000 standards series. Not all the measures set out in the standards have been included, but the most important ones have. The Law defines the areas of action to be applied. This group includes all the most vital social functions, as prescribed in the Article 6 of the Law. Specially significant ICT systems are the ones used, among other things, for:

1) the performance of duties in the public authorities sector;
2) data processing which is considered to be especially sensitive regarding personal data, in accordance with the Law governing the protection of personal data;
3) carrying out the activities of public interest, in the following areas:
   (1) production, transmission and distribution of electricity;
   (2) production and processing of coal;
   (3) research, production, processing, transportation and distribution of oil and natural and liquified gas;
   (4) commercial activities regarding oil and petroleum products; railway, postal and air traffic;
   (5) electronic communication;
   (6) publication of the Official Gazette of the Republic of Serbia;
   (7) management of the nuclear energy facilities;
   (8) usage, management, protection and improvement of the goods of public interest (water, roads, mineral resources, forests, waterways, lakes, shores, spas, wildlife, protected areas).

Persuant to the Law on Information Security, by-laws were also adopted. The Law on Information Security represents one of the key steps towards harmonizing the legal framework of the Republic of Serbia with that of the European Union in the field of information society. Countries should ensure that ICT system operators of particular importance take appropriate and proportionate technical and organizational measures to manage the risks to the network and information systems they use in their business. Countries should ensure that ICT system operators of particular importance implement appropriate measures to prevent or minimize the consequences of the impact of incidents on the network and information system they use. The notification should contain information that allows competent authorities or CERT teams to determine any cross-border incident impact.

12. CONCLUSION

The practice shows that all organizations that have implemented security management system far more easily fulfill their legal obligations in this regard. The greatest advantage of these standards implementation is raising the awareness of the organization employees on the topic of information security. The information and communication system can be damaged and prevented from functioning, but the standards in this area contain methods and recommendations for the continuance of the operations as quickly as possible at another location. In addition to software protection, standards prescribe every other type of protection. Also, the organizations that have implemented this system are obliged to constantly improve and advance all their activities that can contribute to ICT safer functioning. In the Republic of Serbia, information security management system certification is still not significantly represented. The largest number of certified organizations are in the financial services field, since the implementation of the Law on Information Security began in 2016. The organizations obliged to apply this Law had to write the Information Security Act. It is assumed that they have fulfilled their obligation. This paper is a modest attempt to bring this topic closer to the wider audience.
LITERATURE

Abstract: Montenegro is the greatest danger threatened by forest fires, open-air fires, which are related to tiny plants and macchias, which is characteristic of the central and southern regions, and places the regions in great fire hazards. These fires are most common in inaccessible terrain, which makes their extinguishing difficult, as well as a real danger of becoming forest fires and endangering economic forests (northern region), that is, planting olives and other crops and park areas (southern and central regions). Extremely dry weather in the summer period favors the occurrence of fire in the open air. Due to the wind and inaccessibility of the terrain, fires often involve large areas, lasting for several days and in these conditions their extinguishing is difficult.

Keywords: fire, analysis, measures, task.

1. INTRODUCTION

Fire or fire is a quick oxidation of matter with the release of heat and light - flame. [1] Depending on the material, this process can be a burst, releasing explosion-free temperatures, and the material changes its chemical properties. In order to maintain a fire, fuel, oxygen and temperature are needed. The abolition of any of these three combustion ceases. This is important for firefighters when extinguishing the fire. Combustion flame formation is not a required combustion feature of each material. If the solid does not evaporate at a temperature that is obtained by combustion, no flame will be seen. This is the case with iron when it burns in oxygen. The intensity of light originates from ironing. Solid substances evaporating at a temperature that is obtained by combustion, such as phosphorus and sulfur, up with a noticeable flame [2].

The flame temperature depends on the type of fuel, but it also depends on the flame construction, which means that it is not equal to the temperature at each part of the flame of the Bunzen heaters, for example. Ignition of paper occurs at 184 ° C, combustion of wood at 250 ° C, and the natural gas flame reaches 660 ° C. [3]

The fire (from the Illyrian or Trachian, which first meant "fireplace", as the Roman fire or the Albanian fire) is a natural phenomenon that follows some chemical processes, peculiarly-burning oxidation of organic matter, in which the heat and light (burning). Fire is a visible chemical reaction and it is also a fast, self-sustaining form of oxidation during which fuel is emitted by a burning glowing gas in the form of a moving flame. Fire can also be painted with various pyrotechnic compositions.
The fire changed the lives of the first people, changed the diet, reduced the danger of cold, the fear of the dark, reduced the risk of wildlife attacks, prolonged the time of individual action and social gathering, contributed to the development of speech, language and communication, tradition, imagination and creating an atmosphere suitable for the emergence of the first legends and myths. The first beliefs about fire and hearth are dated at least 400,000 years ago. [4]

Elemental disasters, and therefore large-scale fires, have always posed a great danger to people and material goods, and with their destructive potential they constantly cause fear and discomfort. The major damage caused by fire is sometimes affected by the consequences, and sometimes exceeds the definition of a natural disaster.

2. WHAT IS FIRE?

Fire is uncontrolled burning as well as the spread of fire in the area by causing material damage and / or endangering human lives, and often relates to human lives. Given the proliferation of fire, there is a risk of fire in spite of precautions and fires are frequent occurrences. Fire occurs and develops under different circumstances. Classification of fire can be done in several ways. From the point of view of firefighting interventions, we can divide the fires according to the stages of development, by their shape and size, by the place where they are developing, by the type of fuel that is, matter.

Phases of the fire: initial, explosive and phase of a live fire.

Fire type: small, medium, large and catastrophic.

In a small fire, a small amount of fuel is slaughtered. It can be turned off easily. In the middle fire, one or more buildings in one building are burnt and in a large whole building, a factory or a large area.

**Fire class**

The division of fire extinguishers according to purpose is defined by standards, according to which fires are classified into five basic types (classes) of fire - towards fuel materials that can be affected by fire. These are Class A, B, C, D and E fires [6] Table 1.

<table>
<thead>
<tr>
<th>Fire classes</th>
<th>Extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>A- Fires of solid matter (wood,</td>
<td>water - the best</td>
</tr>
<tr>
<td>textiles, coal, vegetable fats,</td>
<td>foam and powder - successful halon and carbon</td>
</tr>
<tr>
<td>plastics, straw, paper and etc.)</td>
<td>dioxide - for smaller surfaces</td>
</tr>
<tr>
<td>B- Fires of liquid and highly</td>
<td>dust and halon - the best</td>
</tr>
<tr>
<td>flammable substances (gasoline,</td>
<td>foam - for fires in carbon dioxide containers in</td>
</tr>
<tr>
<td>benzene, oils, fats, varnishes,</td>
<td>indoor cooling water space</td>
</tr>
<tr>
<td>resins, alcohol, etc.)</td>
<td></td>
</tr>
<tr>
<td>C- Flames of flammable gases</td>
<td>dust and halon - the best</td>
</tr>
<tr>
<td>(methane, butane, propane,</td>
<td>carbon dioxide - for less fires of water - for cooling</td>
</tr>
<tr>
<td>hydrogen, acetylene)</td>
<td>the foam - NO</td>
</tr>
<tr>
<td>D- Light metal fires (magnesium,</td>
<td>Shake only a special powder, a shavings of dry sheet</td>
</tr>
<tr>
<td>aluminum, their alloys, titanium,</td>
<td>metal, stone and dry sand</td>
</tr>
<tr>
<td>electron, other than sodium and</td>
<td>Halon, carbon dioxide, water, foam - NO</td>
</tr>
<tr>
<td>potassium)</td>
<td></td>
</tr>
<tr>
<td>F- Kitchen fire</td>
<td>Fire extinguishers with new fire extinguishing agents</td>
</tr>
<tr>
<td></td>
<td>(soap foam obtained in combination with an acidic</td>
</tr>
<tr>
<td></td>
<td>mixture with fatty acids) and handy dry fire</td>
</tr>
<tr>
<td></td>
<td>extinguishers.</td>
</tr>
<tr>
<td></td>
<td>Water and foam - NO</td>
</tr>
</tbody>
</table>

Table 1. Fire classes - towards fuel materials
A new standard on classification of fires has been issued, class E has been abolished. A new class F has been introduced, including fires involving cooking fats (vegetable and animal fats) used in kitchen appliances.

2.1. Forest fire

Forest is a living community of trees, shrubs and forest animals. It is considered a perfect ecological factory, but also an ideal habitat for many living worlds and a blessing for man. Forests vary in terms of climate, soil type and relief.

Using only natural raw materials - carbon dioxide and water, as a source of energy exclusively for solar energy, it is able to produce significant quantities of biomass (wood, leaves), along with the production of oxygen. Forest reserves significant amounts of dust from the air, favorably influences the circulation of water in nature, as well as on atmospheric conditions (weather and climatic), and serves as an excellent habitat for numerous plant and animal species. It also has a social and aesthetic meaning for man.

The forest fire is uncontrolled, the movement of fire in the forest surface. It belongs to natural disasters. It differs by type, way of stopping and damage. For the formation of a fire, a certain temperature, pressure and oxygen are required, if one of them is removed, the fire stops.

The causes of forest fires are: man, lightning.

Damage from forest fires is: human suffering, destruction of trees, erosion of forest soil, damage to the physical properties of the soil, reduction of humus and production capacity of the soil, disturbance of aesthetic value of the environment, damage from death of forest animals, destruction of residential and commercial buildings.

Fires are one of the main causes of forest destruction. There is a lot of examples, and one of the more drastic fires in Wisconsin and Michigan (USA) that occurred in 1871 when he destroyed 1.8 million hectares of forest and carried 2,200 human lives. In Siberia, in 1915, the fire destroyed millions of kilometers of forest [5]. The soot that covered the sky prevented the break of the sun's air and the temperature dropped by a few degrees. [5]

There are also plant species that are resistant to fire. This is the case with the eucalyptus. Namely, even when it burns in a fire, the eucalyptus is renewed. According to the scientist, this is the responsibility of a special tissue that regenerates the lost parts and is located in the deeper layers of the tree of this plant (while in other species such as oak, this tissue is close to the cortex). [5]

Types of forest fires:
- Subterranean fire or soil fires, arises when leaflets are lit in ground or underground peat deposits. Such a fire slowly progresses and diminishes. It does the least damage and it is easiest to extinguish.
- Ground fire, arises when lit: roof of soil, humus, leaves, needles, moss, dry grass, dry wood, horns. It is the most common form of forest fires, it spreads rapidly, there are plenty of flames and heat.
- The fire of the crochet, develops from a ground fire, if it involves branches of young tree stands. It may be flying a flickering fire or a terrestrial fire. It arises in the dry season of the year. Most needles up. In order to expand it requires a terrestrial fire and wind. It is the most dangerous and most difficult to suppress. Verticals of the wind, it can carry it and more tens of meters further, leaving sometimes behind and the larger do not burn the surface.
- The fire of individual trees, arises from lightning strikes, is common in the rainforest, where there are many dry branches.

Potential fires for forest fires are: live trees, permanent bushes, soil decks, grassland plants, moss, dry trees, wood waste and the like.
Fighting forest fires refers to: preventive action, timely detection, alerting and intervention. The preventive action belongs to the prohibition of firing fire in the forest from June 1 to October 1, the plan of protection, procurement and equipment arrangement, training, informative service, fire protection, construction of connection systems, planting of trees that are hardly flammable, beech and horn. Removal of dry trees and various wood waste.

3. FIRE ANALYSIS IN MONTENEGRO

According to the statistical indicators of forests and forests, now 743,609 hectares or 54% of the total area of Montenegro are. Of the stated area, the forests cover 620,872 ha, while the pristine forest land makes 122,737 ha. Most forests and forest lands are state-owned. The largest part is forests with economic character in the range of 347,581 ha or 81.43%, protective forests cover an area of 66,283 ha or 15.53%, while national parks are 12,975 ha or 3.04%. In the analysis of forest fires, the state of national parks in Montenegro is inevitable: National Park Durmitor, National Park Biogradska gora, National Park Lovćen, National Park Skadar Lake and National Park Prokletije, as well as forest complexes of Montenegrin forest (pure coniferous forests and mixed forests conifers and herdsmen) in the area of Berane, Rozaje, Plava, Herceg Novi, as well as olive complexes on the entire coast, any fire on these complexes without timely and effective intervention would have a characteristic disaster. Fire is a frequent consequence of natural disasters and disasters, with the order of events being different. On the other hand, forest fires, whether caused by human negligence or spontaneous, can endanger whole regions. An example of this kind has many, and the best known are the big forest fires that happened a few years ago on the Montenegrin coast, as this year.

3.1. Forest and fire threat assessments

Forest fire risk assessment is based on: size of forest complexes, age of forest, network and road condition, water supply, degree of danger based on the occurrence of previous fires, application of technical measures of fire fighting, forest fire protection assessment (sectoral, average, state along with transmission lines), locations of highly flammable materials, organizational, equipment and qualification assessments, as well as fire fighting efficiency). The forest fire threat is divided into three levels:
- Moderate vulnerability
- High vulnerability
- very high vulnerability

Taking into account the mentioned elements as well as the climate, the type of forest, the municipality's exhaustion, unoccupiedness, inaccessibility, people's habits and other aggravating circumstances, it is estimated that the threat of fire in Montenegro is very high, so that some success is achieved, Take appropriate measures to overcome many of the shortcomings that have been made. Otherwise, vulnerability can be such that it overcomes our possibilities.

3.2. Strengths and fire protection

The fire protection forces shall include all available human resources engaged in the event of a fire. Pursuant to the Protection and Rescue Act, it is defined that these are operational units. Operational units engaged in fire protection and rescue are:
- municipal services for protection and rescue;
- civil protection units;
- specialist units;
- voluntary protection and rescue units;
- units for protection and rescue of companies, other legal entities and entrepreneurs (entrepreneurial units);
- fire extinguishing unit from air (Avio - helicopter unit).

3.3. Analysis of the case of fire

The meteorological conditions that we had during the previous fire season, as well as these, were unusual in the period from 01 June to 01 October 2012, 2013, 2014, 2015 and 2016, but they were about extreme meteorological conditions that represent a large a challenge for the protection and rescue system in Montenegro. Weather conditions were characterized by a long, hot and dry summer. This was particularly pronounced in the central and southern regions, where absolute maximum air temperature and maximum average number of tropical days were registered. Municipal Protection and Rescue Services during 2012, 2013, 2014, 2015 and 2016 had a large number of interventions, fire extinguishing. Protection and rescue services were extinguished by forest fire, fires burning low vegetation and middle-mountain, fire on motor vehicles, indoor fire and fire at landfills and containers, tables 2, 3, 4, 5 and 6, as well as fires at open space from 2012 to 2016 in Montenegro Table 7.

Table 2. Interventions of municipal protection and rescue services in 2012 – all municipalities

<table>
<thead>
<tr>
<th>Types of interventions</th>
<th>Number of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fires</td>
<td>686</td>
</tr>
<tr>
<td>Forest fire</td>
<td>842</td>
</tr>
<tr>
<td>Fire-low vegetation and middle-mountain</td>
<td>2997</td>
</tr>
<tr>
<td>Fire at landfills and containers</td>
<td>1281</td>
</tr>
<tr>
<td>Fire on motor vehicles</td>
<td>213</td>
</tr>
<tr>
<td><strong>In total:</strong></td>
<td><strong>6218</strong></td>
</tr>
</tbody>
</table>

Table 3. Interventions of municipal protection and rescue services in 2013 - all municipalities

<table>
<thead>
<tr>
<th>Types of interventions</th>
<th>Number of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fires</td>
<td></td>
</tr>
<tr>
<td>Residential buildings</td>
<td>385</td>
</tr>
<tr>
<td>Auxiliary facilities</td>
<td>123</td>
</tr>
<tr>
<td>Business and industrial facilities</td>
<td>52</td>
</tr>
<tr>
<td>Outdoor fires</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>246</td>
</tr>
<tr>
<td>Low vegetation and middle mountain</td>
<td>537</td>
</tr>
<tr>
<td>Siena</td>
<td>38</td>
</tr>
<tr>
<td>Containers - landfills</td>
<td>2732</td>
</tr>
<tr>
<td>Fire on motor vehicles</td>
<td></td>
</tr>
<tr>
<td>PMV</td>
<td>170</td>
</tr>
<tr>
<td>FMV</td>
<td>12</td>
</tr>
<tr>
<td>In railway traffic</td>
<td>3</td>
</tr>
<tr>
<td><strong>In total:</strong></td>
<td><strong>4298</strong></td>
</tr>
</tbody>
</table>
**Table 4.** Interventions of municipal protection and rescue services in 2014 - all municipalities

<table>
<thead>
<tr>
<th>Types of interventions</th>
<th>Number of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fires</td>
<td></td>
</tr>
<tr>
<td>Residential buildings</td>
<td>312</td>
</tr>
<tr>
<td>Auxiliary facilities</td>
<td>108</td>
</tr>
<tr>
<td>Business and industrial facilities</td>
<td>31</td>
</tr>
<tr>
<td>Outdoor fires</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>216</td>
</tr>
<tr>
<td>Low vegetation and middle mountain</td>
<td>488</td>
</tr>
<tr>
<td>Siena</td>
<td>33</td>
</tr>
<tr>
<td>Containers - landfills</td>
<td>1675</td>
</tr>
<tr>
<td>Fire on motor vehicles</td>
<td></td>
</tr>
<tr>
<td>PMV</td>
<td>110</td>
</tr>
<tr>
<td>FMV</td>
<td>9</td>
</tr>
<tr>
<td>In railway traffic</td>
<td>2</td>
</tr>
<tr>
<td><strong>In total:</strong></td>
<td><strong>2984</strong></td>
</tr>
</tbody>
</table>

**Table 5.** Interventions of municipal protection and rescue services in 2015 - all municipalities

<table>
<thead>
<tr>
<th>Types of interventions</th>
<th>Number of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fires</td>
<td></td>
</tr>
<tr>
<td>Residential buildings</td>
<td>492</td>
</tr>
<tr>
<td>Auxiliary facilities</td>
<td>90</td>
</tr>
<tr>
<td>Business and industrial facilities</td>
<td>74</td>
</tr>
<tr>
<td>Outdoor fires</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>599</td>
</tr>
<tr>
<td>Low vegetation and middle mountain</td>
<td>3231</td>
</tr>
<tr>
<td>Siena</td>
<td>82</td>
</tr>
<tr>
<td>Containers - landfills</td>
<td>1219</td>
</tr>
<tr>
<td>Fire on motor vehicles</td>
<td></td>
</tr>
<tr>
<td>PMV</td>
<td>206</td>
</tr>
<tr>
<td>FMV</td>
<td>14</td>
</tr>
<tr>
<td>In railway traffic</td>
<td>2</td>
</tr>
<tr>
<td><strong>In total:</strong></td>
<td><strong>6007</strong></td>
</tr>
</tbody>
</table>

**Table 6.** Interventions of municipal protection and rescue services in 2016 - all municipalities

<table>
<thead>
<tr>
<th>Types of interventions</th>
<th>Number of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fires</td>
<td></td>
</tr>
<tr>
<td>Residential buildings</td>
<td>392</td>
</tr>
<tr>
<td>Auxiliary facilities</td>
<td>177</td>
</tr>
<tr>
<td>Business and industrial facilities</td>
<td>104</td>
</tr>
<tr>
<td>Outdoor fires</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>392</td>
</tr>
<tr>
<td>Low vegetation and middle mountain</td>
<td>2032</td>
</tr>
<tr>
<td>Siena</td>
<td>62</td>
</tr>
<tr>
<td>Containers - landfills</td>
<td>1424</td>
</tr>
<tr>
<td>Fire on motor vehicles</td>
<td></td>
</tr>
<tr>
<td>PMV</td>
<td>247</td>
</tr>
<tr>
<td>FMV</td>
<td>26</td>
</tr>
<tr>
<td>In railway traffic</td>
<td>2</td>
</tr>
<tr>
<td><strong>In total:</strong></td>
<td><strong>4858</strong></td>
</tr>
</tbody>
</table>
Table 7. Outdoor fires from 2012 to 2016 in Montenegro

<table>
<thead>
<tr>
<th>Forest</th>
<th>Low vegetation and middle mountain</th>
<th>IN TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9285</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11580</td>
</tr>
</tbody>
</table>

An airborne helicopter unit with three helicopters "Abell", used for the reconnaissance, two Dromader and two Air Tractor Fire Boss aircraft were used to fire the fire, which were used to extinguish the fire from the air. During the fire season, this unit had over 700 hours of flight in 2012, with over 1,500 flares, and fires were extinguished at more than 100 locations in Montenegro, as well as in Albania and Bosnia and Herzegovina, and on that occasion they were thrown out about 5,000,000 liters of water in areas affected by fires. The effectiveness of fire extinguishing from the air depends to a large extent on the frequency of the impact and the release of "water bombs". In order to shorten the time of the collapse, a proper selection of the location of the water intake should be made. On the basis of the previous experience in fire fighting from the air, air reservoirs for airplanes were recorded (Table 8).

Table 8. Overview of the water catchment area in Montenegro

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Location of water intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flights &quot;Dromader&quot;</td>
<td>- airports: Podgorica, Tivat and Berane</td>
</tr>
<tr>
<td></td>
<td>- earthy flat surfaces: Kapino polje (Nikšić) and Štoj (Ulcinj)</td>
</tr>
<tr>
<td>AT - 802 A &quot;Fire Boss&quot;</td>
<td>- sea surface</td>
</tr>
<tr>
<td></td>
<td>- Skadar Lake, Krupac, Plav and Pivsko Lake</td>
</tr>
<tr>
<td></td>
<td>- airports: Podgorica, Tivat, Niksic and Berane</td>
</tr>
</tbody>
</table>

The fire risk analysis has shown that, due to the configuration of the terrain, fire extinguishing outside of urban zones is difficult, and in most locations it is impossible without air support. This was the main reason for the equipping of the air-helicopter unit of the Ministry of Interior's Directorate for Emergency Situations for fire extinguishers and scouting. This unit, during the fire season, except for fire fighting, is very successfully engaged in reconnaissance, locating and reporting of newly created fires, but also for management and coordination in situations when a larger area is affected. Due to the large number of fires in July 2012, Montenegro sought international assistance through the Monitoring and Information Center (MIC), and the Ministry of Defense of the Republic of Croatia and the Ministry of the Interior of the Republic of Serbia sent two firefighting helicopters, as in the case of large-scale fire in 2017, international assistance was requested. The Forest Administration, within the available funds, acted through its fire service to monitor and report the occurrence of a fire, but due to non-compliance with fire fighting equipment, it was limited to the effectiveness of fire fighting activities. The Ministry of Agriculture and Rural Development, in cooperation with the Directorate for Forests and the Protection and Rescue Service of the Capital of Podgorica, as well as the MUP of the Directorate for Emergency Situations with the support of some media, conducted a campaign aimed at exposing the general public to an increased danger from the occurrence of forest fires, to the possible consequences and the need to involve all citizens and legal entities in the implementation of preventive measures to prevent the occurrence of fires and forest fires. Based on the analysis, it was concluded that the system of protection and rescue, in the part referring to forest fires, has to be significantly improved because at this moment only the municipal protection and rescue services with assistance air-helicopter units of the Ministry of Interior. Municipal protection and rescue services are neither in capacity nor in realistic
ability to approach fire extinguishing in all situations at the invitation of the Forest Administration or other institutions that should have their primary fire fighting teams. The Ministry of Agriculture and Rural Development, the Forest Administration, the national parks, the concessionaires, as entities that manage most of the forests, the current legal regulations and the contracts signed between these entities, are not recognized as someone obliged to organize, equip and equip fire extinguishing units. Accordingly, urgent amendments should be made to the existing regulations.

3.3. Activities carried out during the fire season

In the municipal protection and rescue services in 2014, there were a total of 196 firefighting vehicles, of which 182 were technically correct, while 14 were defective. The Air Combustion Unit (Aircraft Helicopter Unit) has four helicopters: "Abell-412", "Abell-212", "Abell-206" and "Gazella"; two Dromader-type aircraft and two AT-802A Fire Boss fire extinguishers. Based on the report, as well as a tabular overview of the firefighting aircraft, it can be noted that the fire season in 2014 was more favorable than the previous ones, which resulted in significantly lower financial costs for engaging forces and assets and damage caused by fires. During 2015, most of the open-air fires were registered in the wider region of the Podgorica and Danilovgrad regions (Zetsko-Bjelopavlićka plain), as well as in the area of the Montenegrin coast (Kotor and Tivat). In the fire fighting actions in the area covered by these municipalities, fire fighting assistance was provided by firefighting units of neighboring municipalities, as well as by voluntary fire brigades. In case of overcoming the capabilities of the above services, the Directorate-Aircraft Helicopter Unit of the Directorate for Emergency Situations would be involved to extinguish the fire from the air. The Directorate-Avio-Helicopter Unit also participated in surveys on the fires of the affected areas. The scope of engagement of the Air Defense Aviation Directorate of the Emergency Situations Directorate is reflected in the total number of hours of firefight aircraft incurred during the period from June 1 to September 21, 2015, which amounts to 167: 36 hours of flight. The total number of flights of firefighters in the mentioned period was 649 flights, multiplied by the average amount that these aircraft carry is 1,622,500 liters of water, Table 9. In the territory of Montenegro in 2015, there was a significantly higher number of fires in the open space than in 2014. This was due to a significantly unfavorable weather situation compared to 2014, which was characterized by extremely high temperatures, extreme duration of high tropical temperatures, rainfall period, and increased northern winds. In addition to the incidents of fire fighting operations in July 2015, when damaged Aircraft Fire Trailer - Fire Boss (4O-EAA) and Dromader 4O-BRR, we can conclude that during the fire season in 2015, by engaging in protection and rescue services and volunteer fire brigades societies, as well as firefighting aviation of the Directorate for Emergency Situations, prevented endangering of human lives and material goods. In the area of Montenegro, during 2016, fewer fires were recorded in the open space than in 2015. This was contributed by a significantly more favorable weather situation, characterized by the rainy season during June and July, while extremely high temperatures and a rainy period began only in August. These conditions have generated a high fire hazard index in the mentioned period, especially in the wider region of the Podgorica and Danilovgrad regions (Zetsko-Bjelopavlićka plains), as well as in the area of the Montenegrin coast (Ulčinj, Bar, Kotor and Herceg Novi). It was precisely at that time and in that area that there was an outbreak of a large number of fires in the open air, which required a large number of interventions and coordinated work of the Rescue and Rescue Services and the Fire Fighting Unit from the air of the Ministry of the Interior. Assistance in fire fighting actions in the area covered by these municipalities was provided by the protection and rescue services of neighboring municipalities, as well as by
voluntary fire brigades. In case of overcoming the capacities of the above services, the Directorate - Aircraft helicopter unit of the Ministry of Internal Affairs, which also conducted scouting of areas affected by fires, included in the fire fighting actions from the air. The scope of this unit's engagement is reflected in the total number of hours of firefighted aircraft flying from 1 June to 1 September 2016, which is 56:15 hours of flight. The total number of flights of fire-fighting aircraft in the mentioned period was 171, for a total duration of 56.15 hours, with 427 tons of water discharged into flooded places, Table 9. Ministry of Internal Affairs of Montenegro Directorate-Aviation Helicopter Unit, during 2016, a new AT 802A s / n 0611 firefighter was purchased.


<table>
<thead>
<tr>
<th>Period</th>
<th>Aircraft type</th>
<th>Number of flights</th>
<th>Pumps /hours</th>
<th>Liter of water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Fire Season 2012</td>
<td>three helicopters &quot;Abell two Dromader and two aircraft &quot;Air Tractor Fire Boss&quot;,</td>
<td>1500</td>
<td>700</td>
<td>5 000 000</td>
</tr>
<tr>
<td>Summer heat season 01.07.-21.09.2015</td>
<td>Helicopter AB 206 Helicopter AB 212 Helicopter AB 412 Flights AT 802 A s / n 0281 Flights AT 802 A s / n 0294 Flights Dromader M18B s / n 1Z028-04 Flights Dromader M18B s / n 1Z028-11</td>
<td>649</td>
<td>167:36</td>
<td>1 622 500</td>
</tr>
<tr>
<td>Summer Fire season 01.06.-01.09.2016</td>
<td>Helicopter AB 206 Helicopter AB 212 Helicopter AB 412 Flights AT 802 A s / n 0294 Flights Dromader M18B s / n 1Z028-04 Flights Dromader M18B YU-BSX</td>
<td>171</td>
<td>56:15</td>
<td>427 0</td>
</tr>
</tbody>
</table>

4. CONCLUSION

In order to improve existing capacity and respond more effectively in the event of fire, it is necessary to undertake activities that will provide a comprehensive response to future challenges and threats by creating the conditions to:

- find adequate solutions for the formation and equipping of fire fighting units at the level of the Directorate for Forests, National Parks and Concessionaires. For the time being, concessionaires can not be obliged to form units and purchase special fire fighting equipment, but in accordance with the Law on Forests, they are obliged, as forest users, to prevent, suppress and participate in extinguishing fire in their forests, that is, the forests they use with the available by means and mechanisms, which also applies to private forest owners;
- carry out adequate equipping of municipal protection and rescue services that are not adequately equipped with equipment and means in accordance with the fire load and the need to simultaneously intervene in several locations,
- provide financial means for the formation and equipping of civil protection units and teams,
- at the Podgorica airport, in front of the hangar of the airborne helicopter unit, create a hydrant network with 4 hydrant connections for simultaneous charging of four planes,
• Procurement of another fire-fighting aircraft of the type "AT-802 A Fire Boss", which, in addition to firefighting, would also be used for pilots training, which takes a long time, because, in the long run, flying staff is the problem of all countries in the surroundings,
• to procure a multi-purpose helicopter type K-32 which, in addition to extinguishing fire from the air, would also fire firemen to inaccessible locations affected by fire, as well as many other demanding jobs in other areas, which would fully increase the efficiency of the fire extinguishing system in the open space of Montenegro Up.

Also, it is necessary to complete the normative-legal framework; establishing a synchronized coordination system between different levels of management; building a single system of information exchange at the state level; continuation of professional and specialist training of the teams of competent institutions; educating citizens about the need for adequate response in the circumstances, etc.

**LITERATURE**

BUSINESS CONTINUITY PLAN AS A CRISIS MANAGEMENT TOOL

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Abstract: Business continuity management (BCM) is a systematic form of crisis management that has been implemented in many large, medium and small enterprises throughout the world. Business Continuity Plans (BCP) are the integral part of the Business Continuity program in an organization. As BCM is mainly a tool for improving organizational resilience, BC plans give practical solutions as to how to act in the moment the incident occurs, as well as to how to recover the key business operations in the aftermath of the incident. In order to successfully develop and efficiently implement BCP, it is necessary to understand the priorities and requirements for business continuity that are achieved through the business impact analysis (BIA) and risk assessment. To ensure that the plans are effective and applicable in the case of crisis, they should undergo regular testing and reviewing.

Key words: Business Continuity, Crisis Management, Business Impact Analysis, Risk Management, Resilience

1. INTRODUCTION

The scope of threats and hazards an organization can face is innumerable. More often than not, the most serious corporate crises and catastrophes are precisely the result of unforeseen events, unknown threats and poorly assessed risks. Business continuity management helps us deal with non-routine risks (characterized by low probability and high impact level) and uncertainties. Namely, business continuity management is not aimed at anticipating potential risks, but rather on strengthening the system's resilience. In other words, this approach is focused on assets, rather than on threats.

The business continuity management system provides an answer to the following questions: “What if a catastrophic incident affects our organization?” “Will we be able to return to business quickly enough to avoid losing revenue or destroying brand reputation?” (Kotwica et al., 2013: 7)

By applying the techniques of business continuity management, we identify those products, services, processes and activities that are critical to the organization, that is, on whom the achievement of the organization's mission and objectives depend. Since these activities are realized through a combination of human resources, facilities, equipment, intellectual property and supply chain, the principle of planning and managing the business continuity is necessarily transfunctional and directed at the protected assets. We also determine which resources are needed for the organization to "survive" a disruptive event with fewer consequences, and recover as quickly and as effectively as possible, without significant halting of its contractual and other obligations. Through business continuity an organization can recognize what needs to be done to protect its resources (e.g. people, premises,
technology and information), as well as the supply chain, stakeholders, communication channels and reputation. (SRPS EN ISO 22313: 2015)

Business continuity management can be applied in every organization, be it small and medium enterprises, large multinational systems, profit or non-profit organizations, the public or private sector. The application of principles, policies and procedures allows the affected organization to continue to operate before reaching unacceptable adverse impact levels.

Business Continuity Plans are one of the main elements of a business continuity system or program. Business Continuity Plans provide practical suggestions on how to act at the moment the incident occurs, and how to enable the recovery of key business activities in the post-incident period. In order to successfully develop and effectively implement the business continuity program, it is necessary to understand the business continuity priorities and requirements that are identified through the Business Impact Analysis (BIA) and risk assessment.

2. BUSINESS CONTINUITY MANAGEMENT PROGRAM

Generally speaking, business continuity is a strategy for securing the continuity of business functions in the circumstances of reduced or destroyed capacity, through finding alternative locations, resources and persons who can perform the necessary activities during and after the disruptive event.

In order to establish an efficient system of management, the continuity of business requires:
- Clearly determine what critical products and services the organization provides to its users, and which activities generate these products and services.
- Prioritize activities when re-establishing them and the resources required.
- Clearly understand threats to these activities, including dependencies and interdependencies, as well as the impacts that their loss would have on the organization.
- Provide verified procedures for recovering these activities after a disaster incident and monitor and update them regularly.

In order to arrive at concrete data on the benefits of establishing the system and, conversely, the potential damage from failure to implement business continuity program, it is necessary to carry out a preliminary risk assessment and Business impact analysis (BIA analysis). That is why, sometimes, these activities are carried out before and independently from the development of a business continuity plan.

Risk assessment is carried out with the aim of identifying hazards and risks, as well as analyzing the probability of the occurrence of unwanted events and consequences. Within the risk assessment process, the existing security and protection measures are analyzed and new measures proposed against identified hazards. However, one should always bear in mind that risk assessment is an adequate and reliable method for "routine" risks, that is, those risks that have a reasonably high probability of occurrence, for which it is possible to obtain historical and statistical data, as well as those whose actualization would not constitute a disaster for the organization. Risk assessment data can be transferred from already made estimates, whether it be Risk Assessment in the protection of persons, property and business in accordance with Serbian Standard SRPS A.L2.003, whether vulnerability assessment of natural and other disasters (of which risk assessment is an integral part) or any other risk assessment activities undertaken by the company. Although the standards prescribe risk assessment as one of the initial steps in establishing a continuity program, there is no consensus among practitioners on the continuity of business whether this activity needs to be worked separately for these purposes. Namely, in larger systems, the risk management and business continuity programs are separated, and it is considered that the elaboration of a risk
assessment within the continuity of the business is unnecessarily duplication of the work already done.

The basic purpose of the risk assessment within the continuity program is to help the organization, together with the analysis of business impact, to develop a picture of what its most critical functions are and what resources and strategies it has at its disposal during and after a catastrophic event or a disruptive event of a lower magnitude. Namely, for relatively frequent events such as fire, flood, unlawful action, etc. the organization must have preventive measures in place that are implemented on the basis of risk assessment. For example, if it is necessary to provide an alternative facility for continuation of business, and there is a high risk of floods on macro-location, there is no purpose to build or rent an object located in the same flood plain.

With the Business Impact Analysis (BIA), an organization is acquainted with its most important, i.e. critical, products or services, the processes and the activities that are most important for carrying out those processes. Also, the maximum time for which it is possible to remain without the above mentioned activities and processes, RTO - Recovery Time Objective, as well as the resources (human, technical, etc.) that need to be engaged in response to the crisis and recovery are determined. Risk assessment and BIA are the basis for creating business continuity plans that should be activated during a disruptive event. The data collected through the BIA serve as a basis for considering possible business continuity strategies and a selection of the most appropriate ones. Some of the criteria for choosing a business continuity strategy are: Target Recovery Time Objective (RTO), Recovery Point Objective (RPO), Maximum Allowed Outage (MAO), costs of implementation. Business continuity strategies that should be taken into account are those that allow for the reconstruction in time equal to or less than the established RTO, and whose cost of implementation does not exceed the maximum cost that the organization has decided to tolerate in the event of an incident occurring. (Tomić et al., 2017)

Also, the business continuity program must be regularly maintained and updated. Risk assessments, business impact analysis, business continuity plans must be adapted to all changes in the system or outside the system that have an impact on the business. How can we examine whether the continuity program is successful and / or effective? There are various KPIs that we can apply, such as: the percentage of completed training and simulation, the number or percentage of written or updated BIA documents, the percentage of donated or updated business continuity plans, the number of successful checks on "call trees", the number of incidents successfully resolved without activating a business continuity plan, etc. Business continuity management is an ongoing process.

3. BUSINESS CONTINUITY PLAN

According to Serbian standard SRPS ISO 22301: 2014 business continuity plans are documented procedures by which organizations are directed to respond, recover, continue and return to the previously defined level of business operations after disruption. (SRPS ISO 22301: 2014: 2)

Risk assessment and BIA are the basis for creating business continuity plans that should be activated during a disruptive event. The plans include strategies and resources that support them. Plans need to be adapted to the structure, internal and external context of the organization. They are usually divided into the incident response part, which lists the activities to be undertaken immediately after the outbreak of the crisis and the part concerning the recovery of business operations. Plans also address internal and external communication issues during the crisis, as well as coordination of response and recovery with external stakeholders.
Plans identify staff who will be involved in response and recovery activities, as well as their duties. In order to perform these duties successfully, it is necessary for employees to be familiar with the business continuity plan and program, as well as with their duties in the event of a crisis. Each business continuity program should include training of employees, as well as periodic control, simulations and trainings, in order to make the crisis response more efficient.

Business Continuity Plan is one of the plans the organization should have in response to an incident. Namely, the business continuity plan is focused primarily on the recovery of critical business functions after a disruptive event and does not cover all aspects of crisis management or emergency situations. In addition to this plan, the organization should also have a disaster recovery plan (recovery of IT services and applications after a major disaster event), protection and rescue plans (preserving the safety of employees and other persons, as well as other post-incidental protection), evacuation plan, crisis communication plan, etc. All of these plans together constitute a crisis management system, that is, a crisis planning of an organization. The development of each of these plans requires specific knowledge and skills, as well as the different data to be collected, so that they cannot be a substitute for each other. The Business Continuity Plan most often has the following parts:

- Defined roles and responsibilities for people and teams with authority during and after the incident;
- The process for initiating a response (i.e. when and how a decision is made to initiate an incident response and recover critical activities);
- Incident response plan;
- Procedure for communication with internal and external stakeholders;
- Recovery plan for critical activities;
- Crisis communication with the media (Crisis PR);
- The process of withdrawal of an alert after the incident. (SRPS ISO 22301: 2014)

According to Tucker (Tucker, 2014), business continuity plans should be “lean and mean” but complete and executable documents. Tucker points out that this is often not possible because according to standards the plans should contain certain information that is not necessarily geared towards direct incident response, as well as that they do not always make distinction between business continuity management and emergency response. (Tucker, 2014: 130) The same author realizes that what we usually call a business continuity plan often consists of two separate documents: the "basic plan", which indicates the overall organization of the response to an organization's incident, policies, framework, assumptions and command lines, and the "team plans" in which precise instructions are given and resources are identified for each individual business continuity team. Plans may include procedures for implementing a business continuity program, procedures for monitoring the continuity of business program, as well as risk assessment and impact analysis on business continuity strategies. However, in practice, those would be, normally, developed as separate documents.

The plan should answer the following questions:
- What is my role in the event of an incident?
- What are our priorities for recovery?
- What resources do we have?

The two main parts of the business continuity plan are the incident response planning and the business recovery plan. In the incident response plan, a list and a brief description of the immediate actions to be taken in response to the incident, in terms of containing, controlling and minimizing the impact on the business, is provided. This plan often has a check-list format, along with comments.
**Figure 1.** Business Continuity Plan - check list for immediate incident response. (Ninković, 2017)

<table>
<thead>
<tr>
<th>Response</th>
<th>Measures taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you:</td>
<td></td>
</tr>
<tr>
<td>- assess the incident strength and scope</td>
<td></td>
</tr>
<tr>
<td>- evacuate the location if needed</td>
<td></td>
</tr>
<tr>
<td>make sure nobody is missing</td>
<td></td>
</tr>
<tr>
<td>identify the injured employees</td>
<td></td>
</tr>
<tr>
<td>contact emergency services</td>
<td></td>
</tr>
<tr>
<td>started the log book</td>
<td></td>
</tr>
<tr>
<td>activate all available staff and resources</td>
<td></td>
</tr>
<tr>
<td>identify the spokesperson</td>
<td></td>
</tr>
<tr>
<td>collect all available information</td>
<td></td>
</tr>
</tbody>
</table>

The recovery plan contains measures and actions to be taken after an incident in order to minimize business disruption and recovery time. The plan is activated during an incident that prevents the organization from performing its regular activities. The decision to activate the plan is in charge of a crisis headquarters, usually chaired by one of the top executives.

**Table 2.** Business continuity plan - Role and duties of a business continuity team member. (Ninković, 2017)

<table>
<thead>
<tr>
<th>Role</th>
<th>Employee</th>
<th>Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Leader</td>
<td>Name and surname:</td>
<td>Name and surname:</td>
</tr>
<tr>
<td></td>
<td>Contact phone:</td>
<td>Contact phone:</td>
</tr>
</tbody>
</table>

Duties:
- activate procedures in line with the business continuity plan;
- monitor the response and recovery procedure implementation;
- decide if the activation of the alternative location is necessary;
- communicate with the stakeholders;
- provide key information to the spokesperson and public relations officer.

As already mentioned, negative impacts are not analyzed in terms of sources of risk, threats or hazard, but in terms of outcome. Therefore, business continuity plans typically take into account four possible scenarios that cover all aspects of negative events:
1. Access to a location (facility, plant, office, warehouse, sales area ...) is prevented,
2. Temporary loss of technique / equipment (including ICTs),
3. Temporary loss of employees (due to, for example, epidemics, cancellation of people in key positions),
4. Service from a third party is disrupted (e.g. suppliers do not deliver agreed goods, clients do not fulfill contractual obligations ...)

Business continuity plans at the organization level should not be too specific because they can become useless after the first structural or organizational change. They should be tied to organizational processes rather than to structure. Sector plans can be more detailed and they should highlight those critical activities to be recovered first and who are responsible for its implementation. (Tucker, 2014: 129)
### Table 3. Critical activity recovery plan (Ninković, 2017)

<table>
<thead>
<tr>
<th>Critical Business Activity</th>
<th>Recovery activities</th>
<th>Resources needed</th>
<th>RTO</th>
<th>Responsible person</th>
<th>Execution date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>• check the financial state of the company. &lt;br&gt;• negotiate with suppliers in order to prevent the overstocking &lt;br&gt;• provide an alternative location &lt;br&gt;• diversify the scope of products and services</td>
<td>• financial reserves &lt;br&gt;• expenses cuts &lt;br&gt;• development of new products &lt;br&gt;• alternative location</td>
<td>2 weeks</td>
<td>Owner/manager</td>
<td>0/0/0</td>
</tr>
</tbody>
</table>

A business continuity plan should not go into much detail about the way of recovery of an activity, but it should point to documents (instructions, procedures, etc.) that deal with them in detail, where they are, and who is familiar with them. Therefore, the plan should indicate where it is possible to find detailed procedures for the execution of certain activities, but not contain those detailed procedures.

### 4. CONCLUSION

Business continuity plans define the roles of actors, identify available resources, and procedures to be initiated during and after the disruptive event. A business continuity plan can be considered within a wider context of crisis management as a means of ensuring the recovery of business functions. In addition to the recovery of business functions, the crisis management will also aim to provide the life and health of employees and other stakeholders (as achieved through response plans, protection plans and rescue plans, evacuation plans, etc.), reputation (crisis communication plan), data recovery (disaster recovery plan), etc.

Business continuity plans should be based on risk assessments and business impact analysis. These activities should also be carried out in a systematic manner and in accordance with the accepted methodologies. Good practice is the use of the requirements and guidelines of international standards ISO 31000 (risk assessment), ISO 22301 and ISO 22313 (business continuity management system - guidelines and instructions), and ISO 22317 (business impact analysis) or similar standards developed by national standards institutes (e.g. BSI, ANSI, AS-NZS). A systematic approach to managing business continuity is the best guarantee of recovery of business functions after a disaster strikes.
LITERATURE

VARIABILITY OF ANNUAL PRECIPITATION IN SERBIA FOR THE PERIOD 1946-2015

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Abstract: Spatial and temporal precipitation variability in Serbia was examined by using monthly precipitation data from a 70-year period (1946–2015) from 29 stations. Linear regression analysis was employed to identify trends. The coefficient of variation (CV) was used to analyze precipitation variability. The highest percentage of variability was observed in Becej and the minimum percentage of variability in annual series was observed in Zlatibor over the 70-year period. The analysis of the linear trend of the mean annual precipitation showed a trend of increasing for the most stations located in Serbia.

Keywords: precipitation, variability, R Data Science

1. INTRODUCTION

Natural hazards based on measurement of precipitation such as floods and droughts cause directly significant loss of life, set back economic and social development, reductions in agricultural production, destruction of infrastructure and indirectly increased food prices and insecurity. Therefore, spatio-temporal information of precipitation variability can be of great importance for the whole region not only one country.

In Europe, a plenty of research papers have been published regarding precipitation changing [1-5]. In Serbia, in [6] it is concluded that the large-scale atmospheric circulation was responsible for the precipitation variability. In [7-8], precipitation changes were analyzed for the period 1980–2010 and two main driest periods were identified (1987–1994 and 2000–2003). The main objective of this study was to investigate the variability of precipitation across Serbia based on 29 monthly precipitation series for the period 1946–2015 by using the coefficient of variation and trend analysis.

2. MATERIALS AND METHODS

2.1. Study area and data collections

Serbia is located in the central part of the Balkan Peninsula with a temperate continental climate, with a gradual transition between the four seasons of the year.

Series of monthly precipitation data were collected from 29 synoptic stations in Serbia (Image 1) for the period of 1946–2015 and were obtained from the annual meteorological reports of the Republic Hydrometeorological Institute of Serbia (http://www.hidmet.gov.rs/). The geographical description and statistical parameters (mean,
standard deviation and coefficient of variation) of the selected synoptic stations are given in Chart 1.

**Chart 1:** Geographical descriptions and statistical parameters of the synoptic stations used in the study for the period 1946-2015.

<table>
<thead>
<tr>
<th>Station name</th>
<th>Longitude (E)</th>
<th>Latitude (N)</th>
<th>Elevation (m a.s.l.)</th>
<th>Mean (mm)</th>
<th>Standard deviation (mm)</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Banatski Karlovac</td>
<td>20°48'</td>
<td>45°03'</td>
<td>89</td>
<td>630.6</td>
<td>142.8</td>
<td>22.7</td>
</tr>
<tr>
<td>2. Becej</td>
<td>20°04'</td>
<td>45°37'</td>
<td>78</td>
<td>554.3</td>
<td>174.1</td>
<td>31.4</td>
</tr>
<tr>
<td>3. Belgrade</td>
<td>20°28'</td>
<td>44°48'</td>
<td>132</td>
<td>696.4</td>
<td>138.8</td>
<td>19.9</td>
</tr>
<tr>
<td>4. Crni Vrh</td>
<td>21°58'</td>
<td>44°08'</td>
<td>1027</td>
<td>793.1</td>
<td>157.7</td>
<td>19.9</td>
</tr>
<tr>
<td>5. Cuprija</td>
<td>21°22'</td>
<td>43°56'</td>
<td>123</td>
<td>657.1</td>
<td>127.3</td>
<td>19.3</td>
</tr>
<tr>
<td>6. Dimitrovgrad</td>
<td>22°45'</td>
<td>43°01'</td>
<td>450</td>
<td>638.0</td>
<td>124.2</td>
<td>19.5</td>
</tr>
<tr>
<td>7. Kikinda</td>
<td>20°28'</td>
<td>45°51'</td>
<td>81</td>
<td>550.2</td>
<td>122.8</td>
<td>22.3</td>
</tr>
<tr>
<td>8. Kopaonik</td>
<td>20°48'</td>
<td>43°17'</td>
<td>1711</td>
<td>743.8</td>
<td>229.5</td>
<td>30.9</td>
</tr>
<tr>
<td>9. Kragujevac</td>
<td>20°56'</td>
<td>44°02'</td>
<td>185</td>
<td>635.6</td>
<td>117.7</td>
<td>18.5</td>
</tr>
<tr>
<td>10. Kraljevo</td>
<td>20°42'</td>
<td>43°43'</td>
<td>215</td>
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<td>138.1</td>
<td>18.3</td>
</tr>
<tr>
<td>11. Krusevac</td>
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<td>43°34'</td>
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<td>647.6</td>
<td>137.8</td>
<td>21.3</td>
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<tr>
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<td>21°16'</td>
<td>43°08'</td>
<td>383</td>
<td>641.0</td>
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<td>21.1</td>
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<tr>
<td>13. Leskovac</td>
<td>21°57'</td>
<td>42°59'</td>
<td>230</td>
<td>619.2</td>
<td>112.8</td>
<td>18.2</td>
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<tr>
<td>14. Loznica</td>
<td>19°14'</td>
<td>44°33'</td>
<td>121</td>
<td>826.0</td>
<td>146.8</td>
<td>17.8</td>
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<tr>
<td>15. Negotin</td>
<td>22°33'</td>
<td>44°14'</td>
<td>42</td>
<td>648.4</td>
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<tr>
<td>16. Nis</td>
<td>21°54'</td>
<td>43°20'</td>
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<td>584.2</td>
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<tr>
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<td>45°20'</td>
<td>86</td>
<td>619.6</td>
<td>153.3</td>
<td>24.7</td>
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<td>19°46'</td>
<td>46°06'</td>
<td>102</td>
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<td>119.6</td>
<td>21.6</td>
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<td>20°02'</td>
<td>43°50'</td>
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<tr>
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<td>19°05'</td>
<td>45°47'</td>
<td>87</td>
<td>593.0</td>
<td>129.0</td>
<td>21.8</td>
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<tr>
<td>22. Smederevska Palanka</td>
<td>20°57'</td>
<td>44°22'</td>
<td>121</td>
<td>643.0</td>
<td>123.3</td>
<td>19.2</td>
</tr>
<tr>
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<td>44°58'</td>
<td>82</td>
<td>620.1</td>
<td>122.1</td>
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<tr>
<td>24. Valjevo</td>
<td>19°55'</td>
<td>44°17'</td>
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<td>782.3</td>
<td>147.7</td>
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<tr>
<td>25. Veliko Gradiste</td>
<td>21°31'</td>
<td>44°45'</td>
<td>80</td>
<td>667.6</td>
<td>143.1</td>
<td>21.4</td>
</tr>
<tr>
<td>26. Vranje</td>
<td>21°55'</td>
<td>42°33'</td>
<td>432</td>
<td>606.9</td>
<td>117.8</td>
<td>19.4</td>
</tr>
<tr>
<td>27. Zajecar</td>
<td>22°17'</td>
<td>43°33'</td>
<td>144</td>
<td>607.3</td>
<td>126.2</td>
<td>20.8</td>
</tr>
<tr>
<td>28. Zlatibor</td>
<td>19°43'</td>
<td>43°44'</td>
<td>1028</td>
<td>960.4</td>
<td>164.1</td>
<td>17.1</td>
</tr>
<tr>
<td>29. Zrenjanin</td>
<td>20°21'</td>
<td>45°24'</td>
<td>80</td>
<td>578.6</td>
<td>121.6</td>
<td>21.0</td>
</tr>
</tbody>
</table>

1. **Linear regression method**

The linear regression method is one of the methods used to estimate slope intensity. The slope indicates the mean temporal change of the studied variable. Positive values of the slope show increasing trends, while negative values of the slope indicate decreasing trends.
2. Reprogramming language

R programming language as an open source programming language and software environment is used for statistical computing and graphics. Input data for the formation of the regression dependency for the calculation of annual precipitation, standard deviation and other statistical indicators is given from Excel documents to R programming language. In order for the data to be used for a further analysis, it was necessary to transfer them from Excel to a file that uses the programming language R (so-called data frame), i.e. form the input data matrix. According to the performed processing of data the analysis was done.

3. RESULTS AND DISCUSSION

The mean annual precipitation varied between 550.2 mm (Kikinda) to 960.5 mm (Zlatibor) for the period 1946-2015. The spatial distribution of mean annual precipitation in Serbia is presented in Image 2. It increases with the altitude. The results showed that the main amount of precipitation fell in the regions along the greatest rivers (the Danube, the Sava and the Velika Morava). The wettest part of Serbia is on the west, while the driest part is in the northeast. The most of stations has precipitation between 600 mm and 700 mm.

The linear trend in the precipitation series was detected by using the regression method. Annual precipitation with the linear trend at four stations (Nis, Vranje, Belgrade and Palic) during the study period was presented in Image 3.

Image 2: Spatial distribution of mean annual precipitation in Serbia for the period 1946-2015
According to 29 monthly precipitation series, the variability of mean precipitation in seven observed periods, precipitation regarding climate normal (1961-1990) and the period 1981-2010 are presented at Image 4. The data about climate normals can be used for predictive purposes [9]. It can be seen that precipitation is significantly above the value of precipitation for the climate normal.
The coefficient of variation is ranged from 17.1 % (Zlatibor) to 31.4 % (Becej). Spatial distribution of coefficient of variation in Serbia for the observed period is presented in Image 5. The majority of Serbia has coefficient of variation less that 20%.

4. CONCLUSION

The analysis of the linear trend of the mean annual precipitation showed an increased trend for the stations located in Serbia. The spatial distribution of precipitation data can help us to better plan water resources. The future urbanization of big cities in Serbia such as Belgrade, Nis, Kragujevac and Novi Sad can affect changes in precipitation. The further research should be oriented towards monitoring natural hazards depending on precipitation data such as drought and floods and how to find mathematical and soft-computing methodologies to predict them. The obtained results can be useful for planning and management of water resources and agricultural production in line with planning of irrigation systems.

LITERATURE


**ACKNOWLEDGMENT**

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LIFE AND HEALTH PROTECTION IN EMERGENCIES DURING THE RESPONSE AFTER DISASTERS

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Abstract: The main topic of this scientific work is the life and health protection in emergencies during the response after disasters. During the development of this work mainly methods those are used are explicative and descriptive analysis, and content analysis. There were mentioned emergency management phases with a focus on the response. There were described and explained the response after disaster with emphasis on emergency medical aid. The aim of this scientific work is to highlight the importance of emergency medical aid in the response after disaster, as an important segment of the protection and rescue.

Key words: Emergency Management; Response; Response After Disaster; Life and Health Protection; Emergency Medical Aid.

1. INTRODUCTION

Many disasters (earthquakes, floods, fires, terrorism, traffic accidents, etc.) due to the consequences they leave (e.g. people buried under debris or land, people trapped in vehicles, and so on) require search and life saving. Persons affected by a disaster are often the first that feel the danger and consequences of a disaster, especially in sudden disasters such as earthquakes and landslides. Local, regional and national emergency services become aware of a disaster through personal experience, using a surveillance system or obtaining data from others. When the disaster begins to happen and when its seriousness is recognized activity of emergency services at this response period can begin. The primary activity at this period is a population life and health protection in which an important place is taken by emergency medical aid.

2. EMERGENCY MANAGEMENT

Emergency management is a complex process that takes place in several phases. The largest number of sources represent an emergency management as a four-step or four-phase cycle (preparedness, response, recovery, mitigation) but the phase schedule is not always the same, which is explained by the cyclical of the process and the same significance of each of the phases [1] [2] [3] [4] [8]. However, an emergency management process can not be imagined without communication and information, so that the emergency management cycle can be divided into five phases, where the fifth phase – the information phase, extends through the four other phases (Figure 1)[5].

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3. RESPONSE AFTER DISASTER

When a disaster begins to happen and when its seriousness is activity of emergency services during this period of the response phase can begin. Still, the occurrence of a disaster does not always mean that the dangers of the disaster will be recognized. When the disaster occurs, the main priority of emergency services is life saving, which means the work of emergency services on search and rescue, giving first aid and people evacuation. Besides, emergency services work on: an assessment of the impact of an accident; securing water, food and accommodation; sanitary, health and social care; putting in function of the infrastructure etc.

4. EMERGENCY MEDICAL AID

Where as the main priority of emergency services is the life saving, first aid medical treatment to the vulnerable population is a significant activity. Emergency medical service and other health services contribute the most to this activity as well as to activities related to health, sanitary and social care. The number of injured in disasters varies depending on the intensity of the disaster. In big disasters, this number is often so great that local hospitals, clinics and health centers do not have enough capacity to take care of all injured and sick. In such cases, emergency services response must be timely and effective, first aid must be provided to the victims and then victims have to be transferred to health centers as soon as possible. In health centers, victims can get appropriate help. Here, coordination of activities and cooperation between different services plays a major role. The first aid at the disaster site is quite normal and should be a routine for the members of each emergency service. However, in the event of a disaster with a large number of victims, the number of wounded often exceeds the capacity of the paramedics located at the field. In such a condition, medical supplies are quickly consumed, and the transport of injured and ill people can be difficult or impossible, or, if it is possible, the closest hospital capacities can be overburdened [4, p. 256].

One of the first tasks of health and other emergency services in providing first aid is triage, by which the victims are classified based on the severity of their injuries, to ensure that the most critical cases are taken care of as soon as possible. High quality triage saves time and resources of emergency services and the same injured people are not checked several times. Triage tagging is done by placing the sign on the patient's forehead or by placing a color...
mark (light, tape, card). Triage is carried out on the basis of existing triage systems, of which are distinguished START and advanced triage. Triage system named START (Simple Triage and Rapid Transport) is used when medical options on the spot are scarce, and patients are transferred to better equipped places and more adequate medical centers. Tagging in this system is the following: *D – Deceased*, black colour; *I – Immediate* (victims need better medical assistance within an hour), red colour; *DEL – Delayed* (victims need urgent medical assistance, but they can wait until emergency cases are handled), yellow colour; *M – Minor* (victims can wait several hours to be adequately cared for), green colour (Figure 2).

*Advanced triage* is another significant triage system, which is used when there is adequate medical assistance at the site of the disaster. This triage is carried out by trained medical staff, and often contains secondary (hospital) triage. The triage consists of five categories, which are indicated in the following way: *Black Colour* – expecting cases (the injuries are so severe that the victim’s death is expected); *Red Colour* – emergency cases (the injured person can survive, but only with an operative or other similar procedure); *Yellow Colour* – observation cases (the injured person needs help, his condition is stable, but should be monitored); *Green Colour* – cases that can be awaited (the injured person needs medical assistance, but there is no life threat if he does not receive this help); and *White Colour* – cases for dismiss (injured persons needs only first aid) [4, p. 257].

When it’s needed, the framework of providing emergency medical assistance includes the formation of field health facilities, i.e. formation of field hospitals and clinics (in buildings, private houses or tents) in which the basic care of the injured and the ill will be carried out. A significant segment of work of emergency services in emergencies is the health care. A person constantly needs health care, and in emergencies the needs for health care are enhanced – the number of injured and diseased is increasing, and very often health facilities are overcrowded, damaged or not in the required capacity. Regardless, emergency services must do everything to provide adequate healthcare to citizens. The health care starts with first aid, and then with the provision of emergency medical assistance to vulnerable persons, but the health care also covers the health protection of the rest of the vulnerable population. What degree of health care will be applied in an area affected by a disaster depends on the condition of the endangered population, which is determined in the context of an emergency situation assessment. An important element in the assessment of the health condition of the population is the rate of mortality and morbidity, but the morbidity is difficult to measure because it is sometimes impossible to detect whether a person has suffered. The biggest threats are infectious disease, since they are easily spread – through other infected, bad accommodation and bad hygiene, by poor quality food and water, by poor health protection. The major health hazards are diarrhea and acute respiratory infections [4, p. 270].

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64 Some of the triage systems are: simple triage (it is applied when the number of victims is far greater than the number of members of the emergency services), continuous integrated triage (it consists of segments of group, psychological and hospital trials), practically applied triage (it is carried out at the earliest stage of the disaster), reverse triage (it is applied in the military in war conditions) etc. Also, many countries have their own triage systems.
### Figure 2. Basics of the START triage system
(Source: *Critical Illness & Trauma Foundation, Inc.*)

<table>
<thead>
<tr>
<th>Move Walking Wounded</th>
<th>No Respirations After Head Tilt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breathing, but Unconscious</td>
</tr>
<tr>
<td></td>
<td>Respiration – Over 30</td>
</tr>
<tr>
<td></td>
<td>Perfusion, Capillary Refill &gt; 2</td>
</tr>
<tr>
<td></td>
<td>or No Radial Pulse</td>
</tr>
<tr>
<td></td>
<td>Control Bleeding</td>
</tr>
<tr>
<td></td>
<td>Mental Status – Unable</td>
</tr>
<tr>
<td></td>
<td>to Follow Simple Commands</td>
</tr>
<tr>
<td></td>
<td>Respiration – 30</td>
</tr>
<tr>
<td></td>
<td>Perfusion – 2</td>
</tr>
<tr>
<td></td>
<td>Mental Status – Can Do</td>
</tr>
</tbody>
</table>

**Key tasks** to prevent the outbreak of the epidemic are: 1) *Quick assessment of the situation* (which infectious diseases threaten and what is the health status of the population); 2) *Prevention* (infections can be prevented by high-quality living conditions); 3) *Surveillance* (a quick response to the spread of infection is possible only if there is previous monitoring and continuous monitoring of the disease); 4) *Control of the outbreak of infection* (ensure that the disease is quickly detected and put under control through an adequate readiness, through a stock and trained staff, and through a rapid response to the onset of infection); 5) *Health treatment* (quick diagnosis and treatment with trained staff and appropriate resources). Health of the vulnerable population is needed in order to detect infection in time and put those who are infected into quarantine and thus began to eradicate the infection, while vaccinations would be carried out among other residents in order to avoid further spread of the disease, and this process could be carried out well earlier, in the phase of preventing the disease, when the education of the population is conducted in order to avoid the infection. Effective health care implies preventive protection to prevent infection, before it gets out of control. An important part of this is the public education, but also the provision of adequate hospital capacities, trained staff and sufficient stock of medicines and the necessary medical supplies[4, pp. 270–271].

The safety of the vulnerable population depends on the living conditions, and the aspect of *sanitary care* is very important. Animal remains, a pollution of water, air and soil significantly endanger life and health. People also create waste, as natural processes (faeces), or social processes (waste), so it is important that there is a functional sewage system and services that care about waste disposal. An aspect of sanitary care is particularly important in the areas where a large number of people are concentrated (e.g. refugee camps)[4, p. 272].
Emergencies often cause various material and mental consequences per population, and social care in such conditions plays an important role. People can lose their loved ones (children, parents, spouses, brothers, sisters and friends), can stay without work or without a home. Without proper disposal or appropriate psychological assistance, the victims may fall into depression, resulting in suicide, violence or serious illness. Proper medical treatment and timely care of these persons can significantly prevent the negative effects of emergencies. Services operating in emergencies should also have counseling centers not only for the loss of the injured, but also for the need for psychological counseling of emergency services’ members because they are often exposed to stress in the work. Therefore, social protection is an important segment of emergency response [4, pp. 277–278].

5. CONCLUSION

Emergency response is the most visible activity that emergency services perform in the event of a disaster, as well as the emergency medical service. Officials, the media and the public measure the success of emergency services on the basis of their effectiveness in the response phase. Local police, firefighters and ambulance are the first to react when an accident occurs, where the protection of the lives and health of vulnerable persons is a key activity. The key to success in this case is a high-quality action of emergency medical services.

REFERENCES

GRAPHIC INTERPRETATION OF FIREFIGHTING SYMBOLS IN COMPUTER PROGRAMS

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Abstract: Graphic interpretation using fire symbols is an integral part of written communication within the fire protection system and all forces whose main activity is fire extinguishing. Firefighting symbols that are the subject of this paper are defined through normative documents in the Republic of Serbia and the Russian Federation, and thus in all firefighting units operating on their territory. The aim of the work is to bring the public accessibility of software tools (Microsoft Office Visio, The Overlay Maker) to improve the work of firefighter units and higher firefighting organizations. The paper presents an example of good practice used in the Russian Federation through the GraFiS project i.e. a systematic approach to graphic interpretation intended for all fire brigades in the Russian Federation.

Key words: firefighting symbols, Microsoft Office Visio, АИГС ГраΦиC, graphic interpretation, The Overlay Maker

1. INTRODUCTION

The aim of this paper is to make firefighting leaders available information about programs that can help in the graphic interpretation of firefighting symbols. The interpretation of the fire symbols directly refers to operational, tactical and strategic developments in situations in which firefighting units can be found, as well as civil protection units. The practice has so far been that firefighting symbols are entered on existing map bases (operating charts-work charts) done by manual drawing. As the technology of work changes with the introduction of a computer, there was a need to improve the drawing and thus facilitate the production of documentation in a standardized manner. In order to achieve this, it is necessary to approach the application of a single software solution that achieves uniformity in the work for fast, precise and clear interpretation of data that is available to all. It is most often present in practice to use various solutions for making drawings that later organize the work of firefighting units, which means that in practice, the norms for firefighting symbols are not always applied. The above facts point to us that there is no uniform communication with the perpetrators in the field. The Microsoft Office Visio drawing program and the Overlay Maker layer processing program give you the ability to quickly manage objects (fire symbols) so that the working chart can be created in a fast and operational way. Firefighting symbols are the features used to show the equipment used by the fire brigades in the exact way on the map during performing a tactical task. The work includes graphic interpretation of firefighting symbols in the Republic of Serbia and the Russian Federation through two software solutions (Microsoft Office Visio and The Overlay Maker), as well as an example of good practice in the Russian Federation through a program standard for graphic interpretation: АИГС ГраΦиC.
2. NORMATIVE ARRANGEMENT OF FIREFIGHTING SYMBOLS

As graphic communication is considered a systemic form of message transfer within firefighting units, but also of higher firefighting organizations, as well as management of firefighting units, there is a need for standardization of this fire department segment so that the symbols are always the same and clearly defined. Two normative systems have been worked out which give the framework for interpreting firefighter symbols in the same way in the Russian Federation and the Republic of Serbia.

Firefighting symbols in the Russian Federation are defined by the following standards:
- GOST 28130-89 Firefighting equipment. Fire extinguishers, fire extinguishing systems and fire alarms.
- GOST 12.1.114-82 SSBT Fire trucks and equipment.

Firefighting symbols in the Republic of Serbia are defined through normative documents:
- Firefighting equipment-Symbols, Rule book Num. 50-10287/1, Official Gazette SFRJ, Num. 38/81 from 02.06.1981.

Work charts are produced according to a certain methodological procedure with the use of fire symbols in a certain way, and in accordance with the above-mentioned normative documents, which indicates the connection of the symbol and thus the similarity that occurs in both firearms systems in the Russian Federation and the Republic of Serbia. Also, it is important to note that the normative documents are older more than 30 years old, which indicates the system's stability. It is noticeable that the technology changes in the construction of fire trucks, but also other equipment, which opens space for the creation of new fire symbols in the norms of the Republic of Serbia.

3. FIREFIGHTING SYMBOLS IN RUSSIAN FEDERATION AND REPUBLIC OF SERBIA

The firefighting symbols used in both Russia and Serbia are of the same type and can easily be used in the development of tactical tasks. Figure 1 shows the symbols of some fire trucks in the Russian Federation and the Republic of Serbia. Similar situations exist with other firefighting symbols, so the technique of analyzing tactical situations does not differ, which means that similar principles are used to create operational-work charts. It can be concluded that it is possible to compare these two systems of graphic interpretation of firefighting symbols.

Normative documents in the Russian Federation generally envisaged more firefighting symbols for displaying firefighting equipment, vehicles, etc., than in the Republic of Serbia. This condition provides the possibility of filling in gaps that are not defined by the standard firefighting symbols of the Republic of Serbia. Firefighting symbols represent a simplified display of original items used by firefighting units in the field and planning.
4. COMPUTER PROGRAMS - GRAPHIC INTERPRETATION

Computer programs that can be used in creating work charts and drawing firefighting symbols are:

1. *The Overlay Maker*
2. *Microsoft Office Visio*

Both software solutions can be used for graphic interpretation and creation of working maps (operational maps) of interest to fire brigades, civil protection units (hereinafter: CP) and higher firefighter organizations and administrations that run fire brigades. What is important to note is that the offered software solutions are not equally good for all types of tasks. The Overlay Maker is the software tool most suitable for developing a strategic task type, while Microsoft Office Visio as a software solution can be used for tactical and operational task types. This does not mean that software solutions are mutually exclusive, but that some people can more easily solve certain issues.

4.1. Software solution: The Overlay Maker

The Overlay Maker software solution is best used at the strategic level of developing an operational chart - a fire extinguishing work chart. The software solution provides the possibility of easily adding objects (firefighting symbols) and the directions of actions taken with the use of firefighting equipment. In order to use the program, it is necessary to have the basis of the maps and the created *png format files with the appearance of the firefighting symbols that are the subject of the application. Figure 2 shows the layout of the Overlay Maker program environment and an example of a tactical task: the strategic action of fire fighting units in the field in case of forest fire extinguishing in Deliblatska Peščara.
4.2. Software solution: Microsoft Office Visio

Microsoft Office Visio software solution represents a program that is intended for wider use and creation of different types of drawings. In this solution, there is a need for the construction of a base object—a defiled object and other details in the immediate vicinity of the fire (streets, layout of hydrant network, vehicles, etc.). Microsoft Office Visio as a program is used in the part of creating an operating chart and is applicable at the level of tactical and operational task development. Therefore, it is possible to manage all the objects that are on the drawing that is the subject of the creation of the operating chart. The advantage of this program is that it already has created object elements within the program and they do not have to draw again. Each of these elements is easily customizable and this program makes it adequate to be used for this type of activity. Since the program is not originally intended for firefighting symbols, it is necessary to make them in accordance with the normative documentation. Figure 3 shows the appearance of the work environment in Microsoft Office Visio for fire extinguishing in a closed object. Graphic interpretation of firefighting symbols on the territory of the Republic of Serbia is not defined systemically. Depending on the need and the technical solution, the solution comes individually, resulting in there is no tool that is useful to everyone, but to individuals who have individually created the necessary elements that are used to create work-operational maps.

Figure 3: The appearance of the work environment in Microsoft Office Visio and the operational fire extinguishing chart
5. EXAMPLE OF GOOD PRACTICE IN RUSSIAN FEDERATION

An example of good practice is the technical solution implemented in the Russian Federation. Namely, the graphic interpretation of firefighting symbols is resolved through a single graphical system (Microsoft Office Visio). In this way, the system of graphic communication is unified, and therefore training in this segment of the fire service in the whole Russian speaking area. System АИГС ГраФиС was developed by the Scientific-Technical Center of the Siberian Fire and Rescue Academy of the State Fire Department of the Ministry of Emergency Situations of Russia. АИГС ГраФиС is a special software tool that is implemented on the Microsoft Office Visio platform, and is designed to create operational charts for the regulation of operating and firefighting measures and the implementation of fire and tactical calculations. AIGS GraFiS (GRAphical FIre Sets) is an automated information graphic system designed to display and adjust the detailed situation to the operational and tactical image of the site, and therefore the location of fire extinguishing, thus achieving better execution of the fire extinguishing intervention. The software solution works on computers with certain characteristics, that is:

- Software: MS Office 2003 or newer, with installed MS Visio 2007 applications, MS Access 2007 or newer.

6. CONCLUSION

By inspecting the normative documents that regulate the graphic interpretation of firefighting symbols in the Russian Federation and the Republic of Serbia, we come to the conclusion that for some firefighting devices there are no symbols that the firefighters meet on the field. The firefighting symbols are in both countries of the same type and it is possible to make a comparison, which enables easy identification of the symbols used in our conditions, and originally defined by the Russian standard- GOST. Microsoft Office Visio and The Overlay Maker programs allow the user to quickly and efficiently create a work chart in the field without additional costs for the software solution. АИГС ГраФиС (GRAphical FIre Sets) is a very useful and well-designed system that is easily applicable in our country. With minimal adjustments, an excellent system tool is provided which enables improved communication and a typical working-time map. Also, it is possible to train members of firefighting units through type forms already developed under the АИГС ГраФиС project.

REFERENCES

[1] GOST 28130-89 Firefighting equipment. Fire extinguishers, fire extinguishing systems and fire alarms
[2] GOST 12.1.114-82 SSBT. Firefighting trucks and equipment
[3] Rule Book Num. 50- 10287/1, Firefighting equipment-Symbols from 1981-06-02; Official gazette SFRJ, Num. 38/81
[4] Rule Book Num. 50- 15677/1, Fire protection- Symbols for technical schemes from 1981-09-23; Official gazette SFRJ, Num. 56/81
[6] Ilić, M. (2013). Evacuation as a measure of reducing the risk of floods, Faculty of Technical Sciences Novi Sad, Novi Sad
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1. INTRODUCTION

The migration crisis in Europe has reached, at present, unsustainable levels. Even more unsustainable as they are supported almost entirely by few States (Italy in the first place, but also Greece), left alone by the European Union. The credibility itself of the European Union as an international actor is in the running in managing this unprecedented migratory crisis. As we will see in the course of the dissertation, the EU has so far miserably failed to handle the crisis, as it has not been able to set up regulatory and operational tools to deal effectively — and in solidarity between the European States — with the current migration crisis. The European Union has not prevented the fall of one of the pillars upon which the European Community’s construction, from which the Union itself descended, was founded: the free movement of people. Several European States have indeed suspended the Schengen system and have restored or strengthened controls at their borders, also operating rejections of people through the use of armed forces deployed on the border with other EU Member States. Furthermore, the European Union has not been able to operate a vigorous, effective and unified foreign policy to face the major challenges to peace and international security represented by the Syria war, the advance and consolidation of the Islamic State of Iraq and Syria (ISIS), and the serious political instability in Libya. In fact, it’s just since the Syrian crisis has reached unmanageable dimensions and the Islamic State of Iraq and Syria (ISIS) has increasingly conquered territories between Iraq and Syria, more and more imposing flows of migrants have poured in the European continent. Furthermore, the destabilization of northern Africa, mainly due to the crisis in Libya following the French-led military operations in 2011, has made a barrier to migration flows from the African continent fall. As a consequence, Europe has had to deal with the largest migrants and refugees crisis since World War II, that represents a serious threat to European security. The paper deepens the aspects connected both to the national and European security, always taking into account the economic, political and social impact of the actual migratory phenomenon on the European States. In fact, the immediate problems posed by the refugee crisis is of logistical nature (salvage of migrants for Countries like Italy and Greece, where the flows arrive mainly by sea, reception and accommodation on the national territory of the European States concerned). Another important element to consider is national security, as demonstrated by the New Year’s eve events that have upset Germany, in addition to the risk of terrorist infiltration. Not to mention other secondary effects that migratory flows have on the national systems. Firstly, there are the economic problems related to the management of the

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65 It is the case of Austria, which has deployed its own soldiers at Brenner Pass to prevent migrants from Italy crossing the border (formally “to help police monitor migration movements”, as the head of the Tyrol police, Helmut Tomac, said on August 16th, 2017).
phenomenon for Countries already tried by long years of economic crisis. Secondly, there are also political aspects (with the advance of the nationalist political forces in Europe) and sociological aspects (how civil society face the issues of reception and integration of refugees) to take into consideration. The problem of security -national and European- should not be, therefore, intended only in its strict sense, but also as economic security, and as an evident worsening of the political and social tensions related to migration. The risk of a war among the poor, both migrants and citizens, becomes indeed increasingly concrete in European countries exhausted by years of economic crisis, with the risks of violent degenerations, even among the less politicized fringes of the population. It seems increasingly difficult to make citizens of certain States (especially coastal ones) accept the very high economic costs of management of the phenomenon. Just at a time when governments make cuts on essential services and are imposing indigestible sacrifices in the name of the balancing the budget. Not to mention the fact that national funds, earmarked for facing the emergency of migrants, have often been used by some criminal organizations, which have speculated from the emergency situation to make illegal business in the hospitality sector. Judicial investigations have ascertained different situations, as in the case of the judicial inquiry concerning “mafia Capitale”66. In addition, many have shown that in a situation of massive unemployment and deep crisis of the European labour market, the advent of huge masses of people willing to accept working conditions far below the standards commonly adopted in the European States, could have serious consequences in terms of employment and guarantees in the workplace. A downward trend in working conditions, in short, that could well be used by individual national Governments as a pretext to further reduce protections for workers, already severely affected, at least in some States (like Italy), with labour reforms implemented during the period of economic crisis. Without considering that a migration of such large dimensions can only encourage the phenomenon of undeclared work, which already relies largely on manpower of immigrant workers, often deprived of a residence permit and subjected to work at unacceptable rhythms, due to their extraneousness to any legal and union circuit of protection of their rights. Aware of these risks, more and more European states have taken the decision to build walls and close borders, suspending the free movement guaranteed by the Schengen Agreement and introducing extraordinary measures, although defined as "provisional" in their own jurisdictions, as discussed in the following paragraph. Given the introductory remarks above, the present paper will deepen the individual and integrated strategies of the European States, taking into account the multiplicity of aspects mentioned. This in order to understand to what extent the efforts of the national European Governments and of the European Union are really effective and what instruments the international law and EU law offer to face the outstanding challenge for security represented by the current refugee crisis.

2. NATIONAL SECURITY STRATEGIES IN THE EUROPEAN CONTEXT: BORDERS CONTROLS AND THE CRISIS OF THE SCHENGEN SYSTEM

As we have mentioned above, many EU Member States have tried to address threats to national security related to an uncontrolled flow of migrant by imposing border checks and,

66"Mafia capitale" is the name by which it was designated a criminal association of political, entrepreneurial and –presumed- mafia type, which operated in Rome since around 2000. The investigations have led to a series of arrests, starting from December 2014, after the operation called "Mondo di Mezzo".
thus, suspending the Schengen agreement\textsuperscript{67}. In September 2015, Germany imposed checks on its border with Austria, after a record number of migrants travelled to southern Germany from Hungary, via Austria. From that moment on, also Austria, Slovakia and the Netherlands have tightened controls, while Hungary has completed a barrier along its border with Serbia, and blocked a railway line used as a crossing point. Hungary later erected fences on its borders with EU members Slovenia (in Schengen) and Croatia. More recently, on 4 January 2016, Denmark stepped up border controls with Germany, while Sweden extended identity checks on all travellers to reduce the influx of migrants. Sweden is currently refusing entry to anyone who has no photo identification, and has slowed traffic across the Oresund road-rail bridge\textsuperscript{68}. Consequently, in the Schengen zone currently six states have border controls in place: Austria, Denmark, France, Germany, Norway and Sweden. As it is known, the State Parties to the Schengen Agreements may reinstate internal border controls for ten days, if this has to be done immediately for «public policy or national security» reasons. In the event that the problem continues, the controls can be maintained for renewable periods of up to twenty days and for a maximum of two months. In regulation (EU) No. 1051/2013 of 22 October 2013 is specified that such controls «should remain an exception and should only be effected as a measure of last resort, for a strictly limited scope and period of time»\textsuperscript{69}. The period for temporary border controls is longer only when the threat can be considered «foreseeable». The controls can be maintained for renewable periods of up to thirty days, and for a maximum of six months, even if an extension of two years maximum is allowed under Article 26 of the Schengen Borders Code, but only in «exceptional circumstances». The decision of suspending the Schengen agreement is harshly criticized by many, that underline how «if Schengen collapses, it will be the beginning of the end of the European project»\textsuperscript{70}. What we can add by our part is that, apart from the need to ensure that the Schengen Agreements are respected, including the strict rules laid down to accept derogations to the agreements themselves, it seems inappropriate to speak of «exceptional circumstances» for the individual Member States, when it is the whole European Union to be affected by the uncontrolled mass migration. But above all, the possibility that non-coastal States would have to close their national borders appears, to us, discriminatory with regard to coastal ones, like Italy and Greece, that would see even more laid upon themselves the weight of the management of this exceptional migratory phenomenon.

To these and other issues has tried to answer the European Union which, split internally by individual national wills, succeeded only very late in launching documents concerning security and migration, as discussed below.

\textsuperscript{67} On this theme see Migrant crisis: More EU states impose border checks, 14 September 2015, available online on BBC news.

\textsuperscript{68} For an analysis in this sense see Schengen: Controversial EU free movement, 25 January 2016, available online on BBC news.


\textsuperscript{70} See the declaration of the Migration commissioner Dimitris Avramopoulos during a meeting organised by the civil liberties committee on 14 January.
3. THE EU ACTION PLAN: THE EUROPEAN AGENDAS ON MIGRATION AND SECURITY

After months of bitter dispute about the inefficiency of the European Union in managing the crisis of migrants and its inability to find a common modus operandi in the EU, the European institutions have launched an action plan to deal with the increased demand for safety of the Member States consequent to the crisis of migrants. In particular, this action plan is outlined in three Communications that the European Commission has addressed to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions between April and May 2015. The first Communication has been adopted by the European Commission on April 28, 2015, and constitutes the European Agenda on Security, for the period 2015-2020. The declared aim of this Agenda is to give a coordinated response at European level to the situations of instability that threaten the freedom and security of the Europeans, as well as to set out how the Union can bring added value to support the Member States in ensuring security. With this purpose, the EU institutions have agreed about the need of a renewed Internal Security Strategy, in the awareness that, although Member States have the front line responsibility for security, they can no longer succeed fully acting on their own, and EU and national actors need to work better together to tackle crossborder threats. To meet this objective, this European Agenda on Security intends, in particular, to: encourage the exchange of information, the operational cooperation and the increase in mutual trust between Member States and EU Institutions; ensure a greater interconnection between the internal and external dimensions of security; give adequate priority to emerging threats that require a more coordinated EU response (terrorism, organized crime and cybercrime). About the link between the internal and external security of the European Union – that is a fundamental point for this paper – the Agenda emphasize the need to bring together the two dimensions of security. In fact, security threats are not confined, for the European Commission, by the borders of the EU, and the European response must therefore be comprehensive and based on a coherent set of actions combining the internal and external dimensions, to further reinforce links between Justice and Home Affairs and Common Security and Defence Policy. With this purpose, the Agenda provide for a strict cooperation with international partners and a preventive engagement with third countries, in order «to address the root causes of security issues». It must be noted that it is the Agenda itself that underlines the close connection between security and migration, stating that the Agenda «has to be seen in conjunction with the forthcoming European Agenda on Migration». The latter has been actually adopted on 13 May 2015. The European Agenda On Migration outlines what are defined as the «immediate measures» to take in order to respond to the crisis situation in the Mediterranean as well as the steps to be taken in the coming years to better manage migration in all its aspects. The Agenda defines a new strategic approach in the medium and long term, based on four pillars: to reduce the incentives for irregular migration; to manage borders (to save lives and to secure the external borders); a common and strong European asylum policy; a new policy for legal migration. In particular, the measures include a restoration of the level of intervention provided under the former Italian Mare Nostrum operation for saving lives at sea, by tripling the budget for the FRONTEX joint-operations Triton and Poseidon (at this regard an amending budget for

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71 Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, the European Agenda on Security, COM(2015) 185 final, Strasbourg, 28 April 2015.

Another central point of the Agenda On Migration is the system for relocation, on which, however, the Commission refers to acts further regulations to be adopted, and confines itself to appeal to Member States to «show solidarity and redouble their efforts to assist those countries on the frontline», pending the implementation of these measures. The third Agenda adopted by the European Commission is the EU Action Plan against migrant smuggling, of 27 May 2015. The Plan is part of the activities provided in the European Agenda for Migration in order to «reduce the incentives for irregular migration». With this purpose, the EU Plan states the need to undertake the following action: enhance police and judicial response; improve gathering and sharing of information; enhance prevention of smuggling and assistance to vulnerable migrants; strengthen the cooperation with the third countries.

4. CONCLUDING REMARKS

The EU instruments analysed so far appear to be particularly weak to the seriousness of the phenomenon of migration we are witnessing. This is primarily due to the nature of the act in which the measures described are planned: mere communications of the European Commission the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Undoubtedly these are not the only actions taken with regard to migrant and refugees, since the European Union has revised its Common Asylum System, and changes have been made in various directives and regulations (as the Asylum Procedure Directive, the Reception Conditions Directive, the Qualification Directive, the Dublin Regulation, the EURODAC Regulation). However, it is significant how it was not possible to reach concrete results to contain the consequences of the migratory phenomenon, in terms of equal distribution of the weight (economic and of management) of the problem of migrants, as well as in terms of providing internal security within its territory. Even individual initiatives to restore national borders and suspension of the Schengen agreements represent a failure for the European Union which, as mentioned, has failed to approve in time effective remedies to avoid the widespread feeling of insecurity that grips the peoples of Europe. But, above all, the European Union has failed with regard to the management of the causes of the current migration phenomena. A policy that can succeed, at best, in putting patches to the consequences, without being able to influence and hopefully eradicate the causes of the phenomenon, can only be a loser policy. Also on this occasion, the EU has indeed proved unable to act as a credible player in the context of international relations to manage situations of crisis like the one that afflicts the Middle East (especially Syria and Iraq) and North Africa (Libya, in particular). Also on this occasion, the European intervention in the mentioned contexts has been left to individual national wills, showing that the EU is completely unable to express a strong and active position, not only speaking "with one voice" but, above all, speaking with a voice independent from its hegemonic US ally.

REFERENCES


III INTERNATIONAL SCIENTIFIC CONFERENCE
SAFETY AND CRISIS MANAGEMENT – THEORY AND PRACTISE
SAFETY FOR THE FUTURE – 2017

CONFERENCE ORGANIZERS

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AND CRISES MANAGEMENT– THEORY AND PRACTICE „SAFETY FOR FUTURE
2017” (3, 2017, Belgrade)

The Third International Scientific and Professional Conference
“Security and Crises Management– Theory and Practice” – [28- 29th September,
2017, Belgrade: [editors: Branko Babić, Nenad Komazec] – Belgrade, Regional
association for security and crisis management, 2017 – 340 pages; ilus; 26cm

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