SECURITY AND SECURITY RELATED RESEARCH WITHIN THE EUROPEAN UNION AND THE SLOVAK REPUBLIC

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The article presents current aspects of security and security related research. Due to current threats, it emphasizes new measures taken by EU member states and that are focused on science and security research. It underlines particular EU projects and the involvement of individual member states in these activities. The article refers to the position of the Slovak Republic (SR) in relation with EU countries and the reflection of some activities in the development programs within the Slovak Department of Defense.

Key words: *defense sources, strategy, transformation, defense, research, program, cooperation.*

1. INTRODUCTION

At the beginning of the 21st century more attention is paid to security in its full complexity, since the world society has been confronted with new threats of great impact (e.g. terrorist activities in New York 2001, Madrid 2004, London 2005). The current worldwide socio-economic and security environment is significantly affected by factors such as: threats (military, non-military or asymmetric), persistent economic crisis in the context of globalization, permanent terrorism hazard, failing states, instability in developing countries, rising vulnerability of society, etc.

The situation was promptly reflected in the updated key documents of global players from the political scene (The National Security Strategy of USA or Security Strategy of EU[1]).

In spite of the measures taken so far, attempts to enhance security in the world and on the "old continent" failed. This issue could be addressed by modern science through security research focused on the most urgent problems.

2. SECURITY IN EUROPEAN UNION PROJECTS

Security threats possess a multispectral character which will be highlighted hereinafter. Terror and violence in the world is one of the consequences / materialization of fight over limited resources, due to a growing population and significant climate changes in several parts of the world. Those resources are gradually running out and are being replaced just partially (e.g. oil based energy substituted by solar energy). Low-intensity wars waged by terrorits (to include suicide attacks), represent the fight of the weaker against the stronger, while the latter do everything to maintain their monopolies and economic exclusive access to resources.

Thus, another worldwide conflict is very improbable to commence in the near future, considering globalization itself as a factor of peace. When and if there are new technologies available for alleviating conflicts is not clear. The fact that security as a research topic is increasingly included in EU programs proves that security it is becoming a priority for the Union [2].

2.1. Security as a research topic in the Seventh Framework Program (FP7)

In response to the emerging threats the European Committee adopted in 2005 the European Counterterrorist Strategy and assembled the European Security Research and Advisory Board, which formulated the European Program of security research, focused on innovation and end-users' participation. The program requires several sciences to be involved, such as mathematics, physics, chemistry, biology, engineering and social sciences. The corresponding areas of research are information and communication technologies, navigation, signals processing, space systems, sensors, light and solid materials, chemical, biological and medical materials, biometrics, biotechnologies, etc.

The attention paid to security threats was confirmed through the activity conducted by a group of 27 European personalities that formulated a number of principles, as follows:
- threats do not respect national borders;
- globalization is a source of new threats;
- Europe must mobilize its technological potential;
- it requires synergy of many areas of research and development;
- it is necessary to respect the principles of a liberal and open society;
- security of citizens is first the responsibility of national governments.

Based on the aforementioned principles Security has been included as a separate topic (topic 10) in the 7th Framework Program. It is focused on the following seven fields of security:
- citizens' safety;
- infrastructure safety;
- intelligent monitoring and safety of borders;
- restoring safety in crisis times;
- integration of security systems;
- security and society;
- coordination and structure of security research.

The financial allocations for the Security topic totalized only 1.4 billion € for the entire seven years period, which is just a fraction of the expenses of USA. Nevertheless those resources allowed calling 7 challenges and financing 236 projects so far, while there are discussions about other projects that will be handled in the next years [3].

3. THE PARTICIPATION OF SLOVAK RESEARCHERS ON SECURITY WITHIN THE 7TH FRAMEWORK PROGRAM

Slovakia (SR) has been participating in 17 projects so far and was the coordinating nation in one of them (**Table 1**). Within the 7th Framework Program participation, among the 28 EU countries, Slovakia is currently ranked the 18th/19th [4]. It is a better posture than the one that refers to the national financing of research and development, where it is ranked as the 24th. With one coordination obtained (private company Ardaco) Slovakia is, along with Luxemburg, Hungary, Malta and Romania, on the 18th – 21st position (**Figure 1**).

Regarding the overall 7th Framework Program financial allocations, the theme of Security for Slovakia is the third most successful one, although its budget belongs to the smallest program and the corresponding community of potential Slovak experts is quite small.
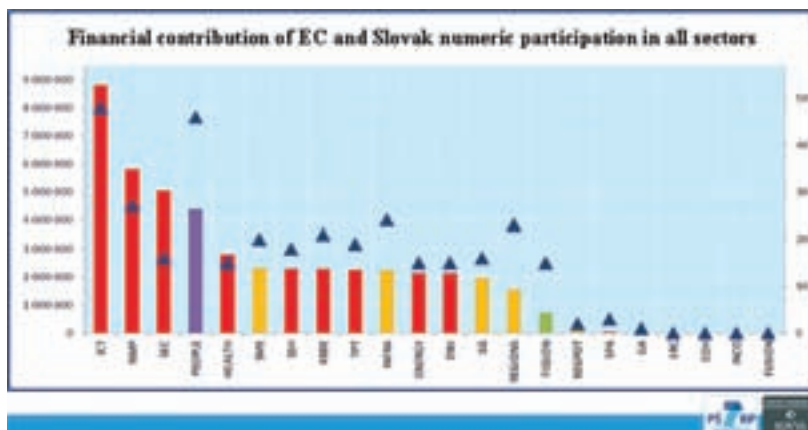
Figure 1. Security is financially third most successful theme of Slovakia in the 7th FR EU

Table no. 1 Projects with Slovak participation

Acronym	Name	Coordinator	Participants from SR
EU SEC II	Coordinating National Research Programs and Policies on Security at Major Events in Europe	IT	Ministry of Interior of SR
INDECT	Intelligent Information System Supporting Observation, Searching and Detection of Security of Citizen in Urban Environment	PL	Technical University Košice
SECRICOM	Seamless Communication for Crisis	UK	Geothermal Anywhere, s.r.o. Ardaco, a.s. IT Institute Slovak Academy of Sciences
SEREN	Security Research NCP Network, Phase 1	FR	APVV
SEREN 2	Security Research NCP Network, Phase 2	RO	University of Žilina
PROTECTRAIL	The Railway-Industry Partnership for Integrated Security of Rail Transport	IT	Railway comp. Slovensko
SALIANT	Selective Antibodies Limited Immuno-Assay Novel Technology	UK	University of Žilina
SMART	Scalable Measures for Automated Recognition Technology	MT	Comenius University in Bratislava
FREESIC	Free Secure Interoperable Communications	SK Ardaco s. r. o.	Ardaco a.s. Nacional security office of SR, World Consult a.s.
SAVELEC	Safe Control of Non-Cooperative Vehicles through Electromagnetic Means	ES	Armed Forces Academy of gen. M.R. Štefánik

Acronym	Name	Coordinator	Participants from SR
CATO	CBRN Crisis Management Architecture, Technologies and Operational Procedures	IL	VÚJE a.s. J. Bohunice
The House	Enhancing European Coordination in National Research Programs in the Area of Security of Major Events	IT	Ministry of Interior of SR
COBACORE	Community Based Comprehensive Recovery Proposal Restoring Security and Safety in the Time of Crisis	NL	University of Žilina
SPICED	Securing the Spices and Herbs; Commodity Chains in Europe against Deliberate, Accidental or Natural Biological and Chemical Contamination	DE	Food Research Institute
LIPSE	Learning from Innovation in Public Sector Environments	NL	Matej Bell University in Banská Bystrica
ESENET	Emergency Services Europe Network	IT	ERUPSI s. r. o.
RESPECT	Rules, Expectations & Security through Privacy Enhanced Convenient Technologies	NL	Comenius University in Bratislava

3.1. Security within the Horizon 2020 Program

Horizon 2020 Program is divided into blocks: excellence research, industrial property and safe society. We can consider a success that during the financial crisis period 70.2 mld. € have been allocated, with more than 3.5 mld. € allocated for the research of safe society. Regarding the implication of Slovakia within the security research of 7th FP we expect our participation in Horizon 2020 to be an increasing one. The topics for this research elaborated within Program Committee of Security within the 7th FP, valid for Slovakia, are the following:

a. Forensic science and techniques: in-situ tools, remotely controlled technologies to examine crime scene in case of an accident or terrorist attack involving CBRNE materials;

b. Law enforcement: analysis and fusion of heterogeneous data, analysis of terrorist-related content on the Internet;

c. Urban security: new challenges connected with large urban environment, large-scale pandemic,

d. Crisis management: measures and technologies regarding impact of climate changes, demonstration activity on large scale disasters and resilience of EU external assets against major identified threats or causes of crisis;

e. Critical Infrastructure: protection of infrastructure from attacks;

f. Border crossing points: biometric-based border checks, public-private partnerships in integrated border management;

g. Supply chains: identification of people, inspection of large volume freight;

h. Ethical Societal Dimension: ethics in border control, cyber security and privacy, third world countries impact on climate changes in Europe.

The research focus has shifted into the field of solving crisis in general, not just crises related to terrorism as it was the approach in the past.

3.2. EU Strategy for the Danube Region

European Strategy for Danube Region has been accepted by the European Council in 2011, with 9 countries involved and 5 non-member states. One of the priorities of this strategy is security and countering the organized crime. Danube region

is a region of borders, which suffers migration tensions, climate changes, economic and social differences. According to statistics, among the first ten countries of the world with the most expanded corruption, four positions belong to this region. Thus cooperation among the countries of this region within the Horizon 2020 should be one of their priorities.

3.3. Industrial policy of the EU with regard to security

With all the recent developments of security research and applications, there is also an industrial policy that requires increased attention. The sector has a remarkable potential and the global world market represented 103 mld. €and more than 2 mil. employees in 2011. EU holds approximately 30 mld. €of it and has a dominant position on the physical protection systems sector (**Table 2**).

Following the mutual policy of EU in the field of security, we can examine also programs of individual member states.

Table no. 2 Security financial market of Europe (2011) [4]

Sector	EU market estimate [mld. €]	World market [mld. €]
Aviation	1.5 – 2.5	5.2
Navy	1.5 – 2.5	6.7
Borders	4.5 – 5.5	9.9
Infrastructure	2.5 – 3.5	12.6
Information systems	4.5 – 5.0	19.4
Physical protection	10 - 15	39.2
Protection clothes	1.5 – 2.5	10
Total	**26 – 36.5**	**103**

4. NATIONAL PROGRAMS

National programs of security in Brussels have been presented by Germany, Romania, Finland and Norway so far. These are countries on the borders of EU or they have badly past historical experiences.

As an example we can mention the Norwegian program, which was financed for 2006-2011 with the budget of 15 mil. € It focused on technical solutions, standardization and training of people and analyzed the relation between maintaining the principles of liberal society and the level of acceptable risk. It also showed the negative side of outsourcing (bureaucratization and weakened contacts, which represents an important threat to overall security) and the need for new approaches in fighting terrorist like activities.

In regard of counterterrorism measures it promotes "weaker" approaches, such as prevention and protection against attacks by using means based on information systems. The irony is that the program underestimated the dangers of homeland terrorism (e.g. Anders Breivik's attack which caused 77 casualties). An important lesson learned is that we should not underestimate the rising danger of far right wing terrorism fed by the crisis.

The national Slovak position regarding security and security related research depends on the overall posture of the country, which is influenced by the following facts:

- SR is on the border of EU;
- has large water supplies available;
- deploys military contingents into different areas of the world;
- aspires to build broad-gauge railway, that could become a channel of positive as well as negative activities;
- it is in the process of building costly infrastructure from the EU structural funds;
- it is increasingly becoming a target country for immigration.

Based on the aforementioned facts and the analysis of the outcomes mentioned in the White Book of SR Defense, new steps were taken in order to assure the accomplishment of Armed

Forces strengthening strategic objective.

In this respect, the main measures envisaged include:

- organization and deployment changes;
- downsizing commander structures at the strategic and operational level;
- strengthening combat and deployment skills of SR Air Force;
- completion of a mechanized brigade;
- downsizing structures of logistic support;
- centralization of competences;
- restructuring plans establishment, with an accent of financial sources available for their successful realization.

Special attention will be paid to the military cooperation within V4 countries, the main tasks being focused on:

- exchange of experience with MKM;
- searching for new projects according the concept of "Pooling & Sharing";
- creating the V4 countries Battle Group, as part of the EU Battle Group.

In line with the aforesaid tasks there has been elaborated a development and modernization plan of SR's Air Force for the interval 2014-2024, divided in two time horizons: short-term (until 2016) and long-term (until 2024). Similarly, the resources allocation was divided accordingly into tasks concerning defense resources and projects, financed by the Slovak government [5].

For the short-term time horizon the tasks financed from the budget include:

- modernization of IFV vehicles;
- acquisition of light 4x4 armored vehicles;
- creation of a mobile centre of command and surveillance (CRC);
- creation of a modern communication and information system (MOKYS);
- modification of the vehicle endowment.

For the long-term time horizon the forecasted tasks include changes and advances in the modernization of:

- training aircrafts;
- combat and multipurpose helicopters;
- fighter planes with multipurpose tactical planes;
- air defense systems.

Al the intended measures depend on the economic conditions and public financial resources available to be allocated for the necessities of the SR Department of Defense.

5. CONCLUSION

Not just our environment, but also worldwide security environment is at present significantly influenced by the rise of new military and non-military threats. This situation is also influenced especially by globalization, continuous economic crisis and terrorism. Thus, it is necessary that all countries deal with questions of security and pay attention to maximize their defenses.

The situation in the society and changes in security conditions require more complex claims for providing security. These reflect in the wide range of measures – political, economical and military.

Science and security research have found their place in this systems. The outcomes are more often applied in particular military programs (both in SR and other EU countries). It is necessary that resolutions and plans be transformed into convenient resource frameworks and reflected in specific activities in the field of armament and human or material resources allocation.

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