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THE IMPORTANCE OF STATISTICS FOR CRISIS MANAGEMENT

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Abstract

The security on the European Union territory is influenced by various elements such as: climate, nature, and society and their crisis events. The global warming phenomenon is responsible for increasing number of disastrous floods, fires, storms, or extremely high and long lasting heats lacerating lots of EU members. The health and lives of European population are also threaten by human initiated activities. These are industrial breakdowns and road accidents as well as war conflicts and terrorists attacks on Ukrainian Russian borderland, in Syria, Libya, and Afghanistan or in Eritrea. By its negative causes: mass illegal and non-controlled migration are affected not only Greece, Turkey, Macedonia, Serbia, Slovenia, Croatia, Austria, Germany and Scandinavia but also all EU Member States including the Slovak Republic. Almost one million of migrants in 2015 forms a mass of war refugees, economic migrants and infiltrated terrorists, who represent the biggest menace for Europe. The terrorist attacks in Paris prove the importance of fight against terrorism and preservation of Schengen borders to protect the European territory and its citizens. The authors of the paper analyse the importance of statistical data provided in the Slovak Republic which can be used as a basis for measurements and comparison of objective component of the security in county districts. They point at present situation of using statistical data by crisis management bodies of public administration. At the same time, they identify gaps in application system of accessible data that can serve as a basis for decision making process in prevention phases within crisis management of county districts. Final part of the paper presents some proposals of solutions to increase the statistical data assimilation in crisis management of public administration not only in the Slovak Republic but also on European territory.

Key words: *Security, objective component of security, security risks, county district, crisis management*

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1 INTRODUCTION

Security on the European Union territory is influenced by climate-natural and social crisis situations. Especially the global warming

phenomenon is responsible for increased number of disastrous floods, fires, hurricanes or extremely high and long-lasting heats affecting the EU Member States as e.g. Serbia, France, Italy as well as Greece, Germany, Poland, Czech Republic and Slovakia.

Health and lives of European population are also threatened by human initiated activities. These are industrial breakdowns and traffic accidents as well as war conflicts and terrorists attacks on Ukrainian - Russian borderland, in Syria, Libya, and Afghanistan or in Eritrea. By its negative causes: mass illegal and non-controlled migration are affected not only Greece, Turkey, Macedonia, Serbia, Slovenia, Croatia, Austria, Germany and Scandinavia but also other EU Member States including the Slovak Republic. Almost one million of migrants in 2015 forms a mass of war refugees, economic migrants and infiltrated terrorists, who represent the biggest menace for Europe. The terrorist attacks in Paris and Brussels prove the importance of fight against terrorism and preservation of Schengen borders to protect the European territory and its citizens.

In spite of the European Council and the EU Member States ambition to solve mentioned problems they still cannot manage to reach desired status.

The security becomes a key factor of human lives in their homes, cities, regions and states. The security becomes top priority of governmental policies.

A basic condition for optimal leading of crisis processes by managers with the aim of reaching desired level of citizens' security is to identify objective security level.

Statistical data collected and published on websites of relevant ministries and county administrative departments as well as statistics collected by the Statistical Office of the Slovak Republic and published in Statistical yearbook of the Slovak Republic should become basic stones to determine objective security of citizens in corresponding territorial regions.

The present status, structures and forms of statistical data publishing do not enable to compare the objective part of the county districts´ security.

The competent authorities of public administration in the Slovak Republic do not examine for the security level of county districts however they are by law (Kovac, Gasparovic, & Meciar, 1994) obliged to work out a complex document – an analysis on possible extraordinary events on the territory of respective county district/region.

Information on objective component of the security could be a part of this document's structure which could serve as a basis to compare the security level among the county districts as well as to adopt measures for security improvements.

2 METHODOLOGY

The aim of the paper is to provide reader with the overview of present possibilities to use statistical data, to identify positives and negatives and to suggest solutions.

The first part of the paper is dedicated to theoretical principles and legal frame of the topic compiled of national and international publications as well as legal norms and strategic documents of state and EU security.

The analysis of current state of collecting statistical data by relevant ministries is the core of the paper. The applicability of present structure and forms of reported indicators of statistical data to measure and to compare the security level by different county districts of the Slovak Republic are evaluated in the paper, too. It critically evaluates present gaps in the system of statistical data from the view of evaluating processes of crisis managers at partial level of public administration in the Slovak Republic.

The part of the paper with solutions offers possible solutions to unify indicators of statistical data, that enable to evaluate and to measure objectively the security of county districts on national and international level.

The contribution of the paper is a fact that it deals detailed with this topic which is usually presented and harmonized just by a ministry and on its level. It offers a frame for deeper research of this topic nationally and internationally. Finally, this information can serve the EU citizens as a base for evaluation of the security of free movements in Schengen area.

Standardised scientific methods as analysis, synthesis as well as mathematical statistical

methods, comparative methods, methods of scientific induction and deduction are applied in the paper. The methods of scientific abstraction and description are applied in the paper, too.

3 THEORETICAL STARTING POINTS AND LEGAL FRAME OF THE TOPIC

Basic human motives are his/her *vital demands*. They are specified as a lack or an over-supply. It is a situation of a person diverging from his/her vital optimum. According to Abraham Maslow the security is one of the most important needs of a human. He placed it on the second position of vital demands list right under the physiological needs (Tyrala, 2002).

Security is characterized by Ondrejcsak, R. (2004, p. 238) as "an absence of threats for basic values" of human rights and freedoms. Similar Simak, L. (Simak & et al., 2004, p. 44) understands *security* as an opposite of dangers and considers it for "an aspect of social, natural, technical and technological system which based on specific internal and external conditions enables the fulfilling of respective functions and their growth for human and social interests".

New understanding of security is presented by Buzan in (Buzan, Ole, & Wilde, 1998, p. 3). Security is a special way of politics and can be applied on large variety of questions and tasks. He understands security as a sector task including the fields of military security, political security, and economic security, as well as social and environmental security.

Horak, R. (Horak, Danielova, Juricek, & Simak, 2015, p. 23) presents security as "a complex of measures to achieve internal security and order in a state, to secure basic human rights and freedoms against different threats..."

Constitutional act of the Slovak Republic No. 227/2002 Col. section 2 Article 1 defines *security* as „a state of things where peace and state security are preserved as well as its democratic order and sovereignty, territorial integrity and inviolability of states borders, basic rights and freedoms and where life, health, property and environment are protected, too".

If using Simak´s definition of county district's security then the security of county districts can be understood as an aspect of social, natural, technical and technological system which in specific internal and external conditions of territorial unit (state, region, district, and municipality) enables the fulfillness of determined functions and their growth in favour of human beings and society.

Based on results of long lasting surveys realised among the citizens of the Slovak Republic on the perception of the security in county districts and on the above stated definitions could be concluded that *total territorial security* is a conjunction of partial components of the security especially physical, social, economic, health and environmental security. These components influence the quality of citizen's life the most. Therefore, they should be of interest for public administration authorities and their crisis managers.

The security of county districts is composed of subjective and objective components. *Objective component of the security* can be expressed by the number of cases where the security was threatened within specific time period, e.g. a year. For example: number of criminal cases, unemployed person, traffic accidents, industrial breakdowns, fires, floods, various epidemics etc.

Subjective component of county district security is the level of security observed by its citizens. Questionnaires can be applied to gain information of the subjective perception. The respondents answer the questions on various security components by choosing numeric value from presented scale.

Index of citizen's security incorporated objective and subjective parts of the security could be one of the possibilities to express the general level of county district security.

Successful application of such index has been already realised in Canada, Germany, France, Australia and in neighbouring Czech Republic. At the present the most detailed system to measure the security of county districts can be found in Canada. Centre for International Statistics of Canadian Council for Social Growth in cooperation with Insurance Committee of Canada have worked out a model so called *Index of citizen's security* (Kovac M. , 2015, pp. 43-54) *in 1998*. Index of citizen's security has been understood as a combination of economic,

physical and health security. Each of them was expressed by selected subjective and objective indicators. Objective statistical data, with assigned importance value of security percepted by citizens based on survey results, have been used as a basis for common security index (Kovac & Hudakova, 2014).

4 ANALYSIS OF CURRENT STATUS OF STATISTICAL DATA IN THE SLOVAK REPUBLIC

Relevant statistical data on partial security components are basis to determine the security level of county districts.

Such data can be gained from public accessible databases of Statistical Office of the Slovak Republic and its regional offices, and websites of relevant ministries and other authorities of state administration. To compare the data with other EU Member states Eurostat databases are accessible, too.

Statistical Office of the Slovak Republic is main body of state administration of the Slovak Republic responsible for statistics. Its position is described in Act No. 575/2001 Coll. on government organisation and central state administration. The tasks of the Statistical Office are specified in Act No. 540/2001 Coll. on state statistics and its latest amendments. More detailed are the tasks determined in other general binding legal acts. Main bureau is situated in Bratislava. There are eight regional bureaus of the Statistical Office of the Slovak Republic in Bratislava, Trnava, Nitra, Trenčín, Žilina, Banská Bystrica, Košice and in Prešov.

The Statistical Office of the Slovak Republic collects and publishes information on security based on crimes, accidents, natural disasters and unemployment rate.

Section crime includes information on crimes quantity divided into basic groups and types, and information on crimes perpetrators, etc. Data on crimes are gained from Registration – statistical system of the Police Corps, Corps of Prison and Court Guard, and Financial Administration. Statistical data are published in Statistical yearbook of the Slovak Republic. These data are cumulative national data representing total number of cases per calendar year compared with other four calendar years. The newest published information is already one year old. The Statistical yearbook of the Slovak Republic 2015 was published in March 2016 and includes complex data for 2014 and earlier. An example of statistical data on crime field is presented in Table 1.

Table1 Crimes

Indicator	2010	2011	2012	2013	2014
Recorded criminal offences	95 252	92 873	90 351	89 677	82 245
Of wich:					
Murder	89	96	75	78	72
Robbery	1 188	851	974	836	680
Battery	2 428	2 231	2 183	2 017	1 955
Rape	117	150	88	91	87
Burglary	14 783	12 884	11 855	11 167	9 427
Motor vehicle theft	3 354	2 694	2 546	2 431	2 297

Source: Statistical yearbook of the Slovak Republic 2015 p. 561

Sections accidents and natural disasters include data on road traffic accidents grouped according to main causes, locality, data on fires and floods. These data include number of accidents, fatalities, number of heavy and easy injured persons, material damages, saved values, number of evacuated person (animals) and saved persons (animals). The sources for these data are found at the Ministry of Interior of the Slovak Republic, the Ministry of Environment, Presidium of Fire and Rescue Corps and its Fire-technical and expertise department (SUSR, 2015, pp. 561-574).

Social security is a special part of the county district´s security. According to some authors

social security expresses the ability of the society to ensure for *an individual or for a social group enough basic sources for life and growth* (Mika & Lesczynski, 2010, p. 6). Employment can be considered as such basic source (Vighova & Stangova, 2013). Thus the social security can be expressed by unemployment rate or by number of unemployed persons according to various indicators which statistical data are parts of labour market (SUSR, 2015B).

Based on the structure of published statistical data of the Slovak Republic information on selected security components especially physical, social and environmental security if floods are included can be gained, too.

Presented examples of total statistical data can be used just to measure and to evaluate the security of county districts in the Slovak Republic compared with national data. The Statistical yearbook of the Slovak regions can be used to compare the level of selected security components among county districts. It is published by the Statistical Office of the Slovak Republic few months later than national statistical yearbook.

According to this public accessible information relevant data on selected components of social, physical and environmental security can be gained, if fires are included. An example of regional statistics can be found in Table 2 regarding data on criminality, accidents and fires in Nitra region.

Analysing the table above it can be stated that there is less information provided as in national statistics. Other disadvantage of such published statistics is no possibility to compare the data among regions or with national statistical data.

Table 2 Criminality, accidents and fires – Nitra region

Criminality, Accidents and Fires	Year		
	2012	2013	2014
Criminality			
Recorded criminal offence in total	11 267	11 206	10 009
Of which			
General	6 971	6 667	5 780
Economic	2 034	2 384	2 271
Remaining	2 262	2 154	1 958
Crimes of violence in total	991	825	724
Of which			
Murders	8	11	12
Robberies	105	102	81
Battery	336	305	258
Road Traffic Accidents			
Traffic Accidents with Material Losses	1 404	1 354	1 294
Material losses (mill. €)	5,1	5,0	5,2
Killed persons	37	21	22
Severely injured persons	157	147	163
Slightly injured persons	603	580	598
Fires			
Fires	2 087	1 084	1 054
Direct material loses (mill. €)	3,9	3,3	4,3
Killed persons	9	6	8
Injured persons	25	27	28

Source: Statistical Office of the Slovak Republic – database of regional statistics RegDat- dated November 30, 2015

There is a quite different way how **the statistical data are collected by relevant ministries.** Here can be found national as well as regional data. Total number of events is presented as well as their causes in numbers or financial amount per calendar year.

An example of such statistics prepared by the Ministry of Interior of the Slovak Republic can be found in Table 3 – traffic accidents in 2015.

Considering the possible application of statistical data in crisis management appropriate content and forms can be found in statistics regarding fire accidents in the Slovak Republic on regional basis registered by the Presidium of Fire and Rescue Corps of the Slovak Republic. Besides regional statistics also information regarding districts, locality, and place of fire, its causes and month when a fire occurred can be found there.

An example of such statistics can be found in Table 4 – fire accidents in 2015 comparing to 2014 and in individual regions.

Table 3 Traffic accidents in the Slovak Republic in 2015

	Slovakia								
	Total	Bratislava	Trnava	Trenčín	Nitra	Zilina	Banska Bystrica	Presov	Kosice
Total number of accidents	13547	2350	1247	1297	1612	1970	1414	1929	1728
Material damages up to 3990€, without fatalities or injuries	6685	1373	521	644	749	999	612	992	795
Accidents with fatalities or injuries	5172	658	540	517	615	745	625	690	782
Fatalities	274	25	26	28	32	54	34	44	31
Heavy injured person	1121	117	103	83	125	180	168	158	187
Damages in 10 €	4381346	714413	486345	390907	551758	629541	472727	616487	519168

Source: Ministry of Interior of the Slovak Republic

Table 4 Fire accidents in 2015 and in 2014 in individual regions

Region	Number of fires (in 2015)	Direct damages (€)	Fatalities	Injured person	Number of fires (in 2014)
Bratislava	1 242	5 515 045	3	29	1 078
Trnava	1 208	6 025 945	5	28	988
Trenčín	948	3 115 260	2	42	788
Nitra	1 070	2 432 345	12	33	934
Žilina	1 216	9 241 700	9	32	1 160
Banská Bystrica	1 245	2 460 665	9	24	1 054
Prešov	1 852	2 985 220	8	29	1 362
Košice	2 189	9 611 330	7	22	1 666
Total	10 970	41 387 510	55	239	9 030

Source: Presidium of Fire and Rescue Corps of the Slovak Republic

Extra detailed are the statistics on criminality prepared by the Presidium of the Police Corps of the Slovak Republic. They are divided into violent crimes (murders, robberies, other violent crimes), sexual crimes (rape, sexual abuse, human trafficking), property crimes (thefts), other crimes and economic crimes. Data are collected regional including districts and national, too. Figures represent number of cases not taking into consideration the surface of the region or its population or density.

Number of floods and their causes is registered in a table only by the Statistical Office of the Slovak Republic. Some relevant information on floods is also published by the Ministry of Environment in *Report on floods on the territory of the Slovak Republic and their causes*. The report is presented yearly to the Government of the Slovak Republic.

Serious industrial breakdowns belong to the category of environmental security of county districts besides floods and fires. The Ministry of Environment presents statistical data on types, causes and consequences of serious industrial breakdowns on their website. Totally six serious industrial breakdowns with one fatality and fourteen people with damaged health are registered since 2005 (Enviroportal, 2016).

According to survey results the citizens are sensitive to perception of county district security especially to *health part of the security*. Statistical data collected by Department of Health Promotion of the Public Health Authority of the Slovak Republic are necessary for objective evaluation of health security. All relevant information regarding health security of county districts are published in tables and graphs within *Annual report on authority activities for particular calendar year*. (UVZ SR, 2015)

At the end of presented analysis of present situation it can be stated that all relevant statistical data necessary to determinate particular components of the county districts security are public accessible in statistical yearbooks of the Statistical Office of the Slovak Republic or on websites of the Ministry of Interior of the Slovak Republic, the Ministry of Environment of the Slovak Republic, website of the Presidium of the Police Corps and the Presidium of the Fire and Rescue Corps of the Slovak Republic as well as on the website of Public Health Authority of the Slovak Republic.

Public accessible are national wide and regional information on number and causes of events per calendar year. They do not take into consideration criteria important for objective comparison such as population of particular regions as well as their total area.

5 USING APPLICATION OF STATISTICAL DATA BY CRISIS MANAGEMENT OF PUBLIC ADMINISTRATION

Within the crisis management of the Slovak Republic the statistical data are collected and processed by Central Monitoring and Controlling Centre as a part of the Section of Crisis Management at the Ministry of Interior of the Slovak Republic.

The Centre collects annual statistical data in tables and graphs regarding *extraordinary incidents* (Act No. 42/1994, 1994) registered at the territory of the Slovak Republic and in particular regions. An example of such statistical data regarding extraordinary incidents is presented in Table 5.

Not every extraordinary incident requires a declaration of crisis situation in particular county district. Statistical data regarding declared crisis situation – extraordinary situations can be found in next table. (Act No. 42/1994, 1994, p. Art. 3).

An overview on declared crisis situations in the Slovak Republic in 2014 can be found in Table 6.

This part of statistical data is detailed elaborated regarding types of extraordinary situations as well as according to particular regions and nationwide.

Centre collects statistical data of crisis management divided in extraordinary incidents and extraordinary situations as well as divided in particular districts. Such detailed presented data show that in 2014 the most extraordinary situations were declared in Levice district (six), then in Galanta district (four) and then in districts of Senec, Piešťany, Žilina, Liptovský Mikuláš and Košice-countryside were declared three extraordinary situations. Almost all mentioned extraordinary situations were caused by floods. In fifty districts out of seventy-nine were declared no one extraordinary situation in 2014.

Based on data in Table 5 - 74, 2 per cent of all 372 extraordinary incidents were floods. The most extraordinary incidents occurred in Prešov region - 156. There were three periods during the evaluated year 2014 when floods caused the most extraordinary incidents: 15th – 16th May, 17th July – 1st August and 12th – 14th September.

Table 5 Extraordinary incidents in 2014

Type of incident	Number		District							
	N	%	Bratislava	Banska Bystrica	Kosice	Nitra	Presov	Trencín	Trnava	Zilina
Unknown substance	21	5.6	9	3	2	1	2	1	2	1
Hoaxes	3	0.8	1	0	0	0	1	1	0	0
Floods	276	74.2	8	16	35	9	133	21	16	38
Excessive snow	0	0	0	0	0	0	0	0	0	0
Leakage of oil	10	2.7	3	0	1	0	5	0	1	0
Windstorm	3	0.8	0	0	0	0	0	0	3	0
Landslide	16	4.3	2	0	0	0	6	2	1	5
Other	43	11.6	13	4	1	1	9	3	6	6
Together	372	100	36	23	39	11	156	28	29	50

Source: Central Monitoring and Controlling Centre of the Ministry of Interior of the Slovak Republic

Table 6 Extraordinary situations in the Slovak Republic in 2014

Type of a crisis situation	Number		District							
	N	%	Bratislava	Banska Bystrica	Kosice	Nitra	Presov	Trencin	Trnava	Zilina
Unknown substance	1	2.2	0	0	0	0	0	0	1	0
Hoaxes	0	0	0	0	0	0	0	0	0	0
Floods	21	45.7	3	0	3	6	2	0	5	2
Excessive snow	0	0	0	0	0	0	0	0	0	0
Leakage Of oil	1	2.2	0	0	0	0	1	0	0	0
Windstorm	1	2.2	0	0	0	0	0	0	1	0
Landslide	15	32.6	2	0	0	0	5	2	1	5
Other	6	13.0	1	0	0	0	1	0	0	4
Together	46	100	6	0	0	6	9	2	8	12

Source: Central Monitoring and Controlling Centre of the Ministry of Interior of the Slovak Republic

Taking into account that Slovakia is a mountainous country it is interesting that there occurred no extraordinary incident on the Slovak territory caused by snow in 2014. For Banska Bystrica region was the year 2014 exceptional because there was not declared any extraordinary situation at all. Throughout 2014 there was not declared any extraordinary incident in twelve districts.

All presented statistical data represents type and number of incidents in particular calendar year. However, they cannot be used for objective evaluation and comparison of security level

between county districts. More objective criteria should take into consideration the number of incidents per square km of the region area or per specified group of citizens e.g. per thousand citizens of district area.

6 EVALUATION OF CURRENT SITUATION AND SUGGESTIONS

According to presented analysis there do not exist a body or an institution in the Slovak Republic using accessible statistical data and other information to determine an index of security of county districts as above described on an example of Canada.

Although the security has become a top priority there does not exist legal norm in the Slovak Republic binding the public administration bodies with this task, too.

In this connection the majority of interests of the particular public administration bodies is dedicated to identification of security threats and their elimination by adoption of legislative, personal, organisational or technical measures. Adoption of National strategy of security risks management in the Slovak Republic by the government of the Slovak Republic (VSR, 2016) is a result of these ambitions. The aim of the strategy is to define measures to reduce security threats in favour of every single citizen of the Slovak Republic. It can be realized through:

- Integration of measures to eliminate risks in all developing activities of the Slovak Republic;
- Increase of awareness on risk management including readiness and immediate reaction if extraordinary incident occurs.

By adopting this Strategy the Slovak Republic belongs to the most active EU Member States in performing tasks of the EU Strategy on internal security (EU, Strategia vnutornej bezpecnosti Europskej unie: Smerom k europskemu bezpecnostnemu modelu, 5842/2/2010, 2010) and at the same time it fulfils a commitment on the field of civil protection designated by the EU (EU, 2013).

It is a pity that none of these documents requires determination of security level of particular county districts, their comparison and analysis.

Neither current analysis of the territory elaborated by state administration bodies on possible rise of extraordinary incidents nor new strategies provides citizens with easy readable information on internet. Many of tables and graphs with expert comments in district's documents still are and stay strange for those whom are dedicated.

Security index of county districts should be a simple expression of objective and subjective perception of the county district security. Simple numeric formulation of security level in connection with graphic expression on a map would bring citizens a possibility to evaluate and to compare security level in his place of residence or employment or other places in his/her country where he/she is intended to spend holidays.

It would be beneficial if such index could be applied within the Schengen area where a free movement of citizens is guaranteed. Citizens could have a possibility to check in advance (as they do now with weather forecast) and to compare security level of regions/districts where they are intended to travel.

There should be specified a time period for index renewal in secure state of the country. It should be renewed few times per year if large crisis occur affecting more than one EU Member State to express the actual security situation.

There can be found an example of well performing index of citizens' security in Canada. It should become a goal of all analysis focused on evaluation of security risks in county districts.

7 CONCLUSION

The aim of the paper was to analyse and to evaluate present situation of using statistical data in crisis management of the Slovak Republic. The results of partial analysis have revealed weak sites of present situation especially the fact that public administration bodies of the Slovak Republic are not interested in using statistical data to determine objective security of county districts. Also a fact that provided statistical data cannot be used to compare security level of individual county districts can be seen as a weakness of the system. The current situation would be improved by a small change – to add a calculation per square kilometre or per thousand citizens.

Initiative of the Slovak Republic to gain wished level of citizens´ and state security by National strategy on security risks management are good

pre-conditions for experts' negotiation with competent persons of particular ministries to agree on implementation of security index of county districts.

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