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## TRANSPORT – SIGNIFICANT CRITICAL INFRASTRUCTURE SECTOR

*The paper is dealing with actual situation in protection of critical infrastructure in transportation sector in the Slovak Republic. It informs about the European Critical Infrastructure Protection Initiatives and strategic documents solving critical infrastructure in the SR. Subsequently it describes elements of critical infrastructure in all transport sub-sectors, ways of their protection and future tasks that should be realized to reduce the risks threatening the stability of critical infrastructure as well as to avert attacks on these elements. It also emphasizes the importance of legislative framework on national and international level.*

## DOPRAVA – VÝZNAMNÝ SEKTOR KRITICKEJ INFRAŠTRUKTÚRY

*Článok sa zaoberá aktuálnou situáciou v ochrane kritickej infraštruktúry v sektore dopravy v Slovenskej republike. Poskytuje informácie o aktivitách súvisiacich s ochranou kritickej infraštruktúry na úrovni Európskej únie a strategických dokumentoch, ktoré riešia problematiku kritickej infraštruktúry v Slovenskej republike. Ďalej popisuje prvky kritickej infraštruktúry vo všetkých subsektoroch dopravy, možnosti ich ochrany a ďalšie úlohy nevyhnutné na redukciu rizík ohrozujúcich stabilitu kritickej infraštruktúry ako aj odvrátenie útokov na jej prvky. Príspevok súčasne zdôrazňuje dôležitosť legislatívneho rámca na národnej a medzinárodnej úrovni.*

### 1. INTRODUCTION

The questions of critical infrastructure protection started to be emphasized especially after tragic events of 11 September 2001 in the USA when the vulnerability of the critical infrastructure elements was confirmed and the first sophisticated measures for increasing the level of its protection were formulated. The reason is formation of super - terrorism as new dimension of terrorism against a background of “battle of civilizations” [4]. In the Slovak Republic (SR) transport infrastructure is included among eight identified significant critical infrastructure sectors that are strategically important for the maintenance of vital societal functions, health, safety, security, economic or social well-being of people, and the

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disruption or destruction of which would have a significant impact in the state as a result of the failure to maintain those functions. The transport sector in the SR comprises road, railway, aviation and water transport [3]. It is a vast, open interdependent networked system that moves millions of people and millions of tons of goods. Ensuring its security is mission charged to government, private industry stakeholders and all sector partners.

The aim of the critical infrastructure protection and its defence is to reduce the risk of the threat and stability of the critical infrastructure elements as well as to avert the attack on these elements. The main step is ensuring legislative framework at national and international level. Another important step should be protection and prevention as an effective way for risks minimisation.

## **2. EUROPEAN CRITICAL INFRASTRUCTURE PROTECTION INITIATIVES**

On 17-18 June 2004, the European Council asked the Commission to prepare an overall strategy to enhance the protection of critical infrastructures. In response, the Commission transmitted on 22 October 2004 a Communication entitled "Critical Infrastructure Protection in the Fight against Terrorism" putting forward suggestions to enhance European prevention, preparedness and response to terrorist attacks involving critical infrastructures.

The Commission's intention to propose a European Programme for Critical Infrastructure Protection (EPCIP) and a Critical Infrastructure Warning Information Network (CIWIN) was accepted by the European Council in the Council conclusions on prevention, preparedness and response to terrorist attacks and in the Solidarity Programme, both adopted by the Council on 2 December 2004.

Throughout 2005, intensive work was done on the elaboration of EPCIP. Two European seminars on critical infrastructure protection and a number of informal meetings were held bringing together experts from all EU Member States. This work culminated in the adoption by the Commission on 17 November 2005 of the Green Paper on a European Programme for Critical Infrastructure Protection.

The Green Paper exercise was followed by a detailed impact assessment and the adoption on 12 December 2006 of a policy package on EPCIP composed of a communication and a proposed Directive. The communication deals with general policy in connection with EPCIP (CIWIN, work-streams to develop EPCIP, sectoral interdependencies, annual work planning and the residual work on National Critical Infrastructure) whereas the Directive focuses on the designation of critical infrastructure of a European dimension (European Critical Infrastructure or "ECI").

On 5-6 June 2008, the Justice and Home Affairs Council reached political agreement on the Commission proposal for a Directive on the identification and designation of European Critical Infrastructure (ECI) and the assessment of the need to improve their protection. The Council of the European Union adopted the Council Directive 2008/114/EC on 8 December 2008. The Directive establishes the procedure for the identification and designation of ECI.

The criteria for designating an infrastructure located in the EU Member State as an ECI is that its disruption or destruction would have a significant impact on at least two Member states. The Directive is focused on the transport and energy sector and is to be reviewed after three years to assess both its impact and the need to include other sectors within this scope – inter alia the Information and Communication Sector.

### 3. CRITICAL INFRASTRUCTURE IN THE SLOVAK REPUBLIC

The Slovak Republic as a member of the European Union participates in development of documents concerning the critical infrastructure and especially their incorporation into legislative framework. At present, the issues of critical infrastructure in the Slovak Republic are codified in the act No. 45/2011 Coll. of 8 February 2011 about critical infrastructure. This act determines competencies and responsibilities of the central bodies of state administration of the Slovak Republic. Municipalities and legal entities have also defined their responsibilities in this field. Strategic documents solving critical infrastructure in the SR are as follows:

- Decree of the Ministry of Defence of the SR No. 353/2004 Coll. stipulating criteria for inclusion of objects of defence infrastructure into the category of objects of special importance and the category of other important objects,
- Security strategy of the Slovak Republic of year 2005,
- Conception of critical infrastructure in the SR and the ways of their protection and defence of year 2006,
- Act No. 45/2011 Coll. of 8 February, 2011 about critical infrastructure.

In the Slovak Republic the critical infrastructure sectors are defined as follows (see Tab.1).

*Tab. 1. Critical Infrastructure Sectors*

<b>Sector</b>	<b>Subsector</b>
1. Transport	Road transport Aviation transport Water transport Railway transport
2. Power industry	Mining Electroenergy Gas industry Oil and oil products
3. Information and communication technologies	Internet Information systems and networks
4. Electronic communications	Satellite communication Networks and services of stable and mobile electronic communications
5. Post	Providing postal services, post system of payments and administering activities
6. Industry	Pharmaceutical industry Metallurgical industry Chemical industry
7. Water and atmosphere	Providing drinking water Water buildings Meteorological service
8. Health Services	

Reference [9]

#### **4. TRANSPORT SECTOR IN THE SR CRITICAL INFRASTRUCTURE**

Transport sector underlies economic growth, significantly contributes to functioning the Slovak economy and its regions and so create conditions for optimal use of economy and social potential. Transport, enabling free movement of persons, goods, capital and free delivering services underlies functioning simple internal EU market. Transport sector create about 4,2 % of working positions and 8,2 % of GDP [7].

Transport sector is affected by wide spectrum of external social and economic factors as demography, inhabitants' standard of living, land use planning, production organization, structural changes of society, accessibility to transport infrastructure and integration of the country into international business. These factors have impact on inquiry and offer of transport services. Transport belongs to fields that have significant impact on social and economical development and standard of living growth.

Therefore the aim of the SR is to ensure quality, available and integrated transport infrastructure, competitive transport services and ecologically and energy effective and secure transport.

Critical infrastructure in transportation sector in the SR comprises road, railway, aviation and water transport. Emergency events, disasters and terrorist attacks (New York, Madrid, London) of the last years on transportation targets showed us what the failure of critical infrastructure in transportation sector means.

The transport sector has significant interdependencies with many of the other critical infrastructure sectors, e.g. transport and energy sectors directly depend on each other to move vast quantities of fuel to a broad range of users and to supply the fuel for all types of transportation. Understanding the downstream implications of potential disruptions is one of the critical challenges facing the transportation systems. E.g. in USA, following the 11 September attacks, the aviation system was shut down and the borders were closed, causing supply chain disruptions across multiple industries [1].

Recognizing the importance of systems is very important when determining cost effective countermeasures. Since resources available for protecting critical infrastructure are robust decision making process that provides critical information to identify the highest priority systems and assets is necessary.

##### **4.1 Road Transport**

In the Slovak Republic the highways, roads for motor vehicles and selected part of the roads of the 1st class are administered and maintained by the National Highway Company (Národná diaľničná spoločnosť, a.s.) for the whole year. This company is also investor that realizes building of highways and express ways.

Considering the density of the road network in the SR we can say that in case of traffic road destruction that is not very extensive, it is possible to trace alternate routes with use of rest traffic roads. This fact means that transportation needs will be ensured with supposed time delay but the run of the national economy will not be seriously limited.

Concerning the highways and express ways, the critical infrastructure elements include important road objects as tunnels, bridges and information cables situated in town residential areas with substantial density of population (great effect on inhabitation psychics in case of terrorist attack).

In tunnels there are installed electronic monitoring devices of different levels that distinguish types of motor-cars, movement of persons and animals in tube. Fire protection is realized also through these devices that automatically announce the emergency event in case of its occurrence and indicate the place of origin. For each emergency event is elaborated process of activities that have to be realized by operators. The permanent physical protection of tunnels in tube is not needful. In tube there is reinforced signal for mobiles, broadcasting of the Slovak radio and radio signal SITNO for respective units of integrated rescue system.

The important task is to increase repression prevention of dangerous goods transportation through tunnels because despite of prohibition this fact is not respected. This reality could results in emergency events during day-to-day transportation and or eventually be used for preparation of terrorist attack.

The bridges are in part monitored by video cameras with video port on operators' station. Transmission cables of monitoring devices are double but they are not protected against intentional mechanical interruption and this fact is not considered also for day-to-day operation. Physical protection is not realized.

Because the National Highway Company does not dispose of any force unit and highway police does not ensure protection of critical infrastructure objects, this fact has to be processed in legislation. It is necessary to lay duties on the force units to ensure protection of selected objects of critical infrastructure on traffic roads in case of revelation of prepared terrorist attack or attack announced by terrorist groups.

The Slovak Road Administration (Slovenská správa ciest) executes for motorways, express ways, 1st, 2nd and 3rd class roads transport planning, keeping of central technical databases, central databank, technical development, including related conceptual, coordination and methodological activities, administration of 1st class roads and land owned by the Slovak Republic, including investment activity for 1st class roads. The critical infrastructure elements within the Slovak Road Administration are only the 1st class roads and bridge objects on them. Their damage or devastation would affect the planned movements of armed forces and also supply and transport of inhabitants during war.

In the peaceful conditions it is difficult to specify roads and objects administered by the Slovak Road Administration that should be integrated into critical infrastructure and their elimination would have a significant impact on activities of organization, sector or other sectors. This is proved by relatively frequent serious road accidents that put out certain road of service, avert transit or make it difficult. Solutions for transport rerouting are accepted in relatively short time. This is similar in case of natural disasters.

Neither at present nor in the future any form of protecting critical infrastructure elements in this subsector will not be realized.

Very important will be cooperation during putting road or object of service, especially in these fields:

- monitoring size of damages by help of helicopters,
- informing about possible alternate routes through media,
- organizing and indicating alternate routes in cooperation with traffic police,
- use forces and means of integrated rescue system.

#### 4.2 Railway transport

Within the Slovak Republic the railway transport is represented by the Railways of the Slovak Republic, Bratislava (Železnice Slovenskej republiky, Bratislava), the Railway Company Slovakia (Železničná spoločnosť Slovensko, a.s.), the Railway Company Cargo Slovakia (Železničná spoločnosť Cargo Slovakia, a.s.) and police.

The critical infrastructure elements within the railway transport are:

- technological complexes for control of transport processes at all levels,
- important railway junctions - Bratislava, Trnava, Žilina, Zvolen, Košice, Čierna nad Tisou, Maťovce, Haniska near Košice,
- international corridor routes,
- railway bridges,
- railway tunnels,
- automatic telephone switching centres in important railway junctions,
- electrical distribution stations that ensure power supply for electric routes and transit of electrical energy of very high voltage for public sector,
- trains for personal transport,
- freight trains for transportation of dangerous goods,
- storages of driving fuels.

In conditions of the railway transport, protection of critical infrastructure elements is realized through employees of the railways, by technical means and their combination. Employees carry out regular control and supervision, technical means are used for permanent or sporadic monitoring of critical infrastructure elements through camera systems, monitoring movement of persons, signalization of object violation, electronic fire signalization. Acceptance of measures that concentrate on elimination of antisocial activities in district of railways, ensuring continuity, safety and security of railway transport and prevention and removal of emergency events in railway transport mean another important step in protection of critical infrastructure elements.

#### 4.3 Aviation transport

Critical infrastructure within the civil aviation subjects comprises:

- airports as part of land transport infrastructure of civil aviation,
- navigation services that ensure management of air traffic in the air space of the SR with international relations. They include in-flight operation services, air communicating services, air information service and air meteorological service,
- airline operators.

The most important elements of critical infrastructure in this subsector are:

- airport halls,
- moving areas of the airport as take-off and landing surfaces, rolling surfaces, access and parking surfaces,
- technical equipment of airports,
- operation buildings of airports and providers of navigation services,
- storages of aviation fuels and greases,
- navigation devices at the airports and outside,
- aircrafts.

Protection of critical infrastructure elements in aviation transport is ensured in accordance with international regulations following from:

- Convention on Civil aviation - Security manual for the protection of civil aviation against acts of unlawful interference (Doc. 8973/6),
- Membership in the European Civil Aviation Conference - ECAC (Doc. 30/12th edition),
- Membership in the EU (Regulation (EC) No 2320/2002 of the European Parliament and of the Council establishing common rules in the field of civil aviation security and Commission Regulation (EC) No 622/2003 laying down measures for the implementation of the common basic standards on aviation security,
- Act No. 143/1998 Coll. about civil aviation.

#### **4.4 Water transport**

The State Navigation Administration of the Slovak Republic (Štátna plavebná správa SR) represents state administrative body for inland navigation and ports. This institution is entitled to require immediate stop or restriction of the navigation at assigned territory of the Slovak Republic in case of threat to security of navigable operation due to emergency event or crisis situation.

The Slovak Navigation and Ports (Slovenská plavba a prístavy a.s.) is a dominant company in the field of transport, transshipment and warehousing of goods, forwarding services, repair works and building of new vessels on the territory of the Slovak Republic. This company offers logistics services, being connected with transportation of all kinds of goods on the river Danube as well as on the whole network of West European waterways between the North Sea and the Black Sea.

The Slovak Navigation and Ports is directly connected with railway and road transport and in port Bratislava with internal pipeline from refinery Slovnaft a.s..

The most important critical infrastructure elements in this subsector involve:

- railway siding in ports Bratislava and Komarno attached to railway transport network of the SR,
- transshipment centre of mineral oils in port Bratislava directly attached to pipeline from refinery Slovnaft, a.s.,
- distribution of electricity within ports – central transformer station,
- port pools attached to main course of river Danube.

Protection of objects in ports Bratislava and Komarno is ensured by private security service. Protection of inland water roads is ensured by The State Navigation Administration of the Slovak Republic. Ministry of Transport, Building and Regional Development of the SR is subject responsible for protection of this sub-sector in public sphere, in private sphere responsible subjects are providers, insurance companies, etc.

#### **5. CONCLUSIONS**

In consequence of possible terrorist attacks, great natural disasters or technological accidents, threatening the crucial objects of critical infrastructure is always connected with violation of exerted processes in organization and society life, but also with great losses of property and lives, moral damages and large violation of natural environment.

The present proceedings applied by bodies of state administration of the SR, as well as the owners and operators of critical infrastructure seem to be not sufficient and therefore it is necessary to look for more effective and efficient measures that reduce probability of crisis events formation during critical infrastructure operation and in case of its occurrence enable to minimize the negative impacts.

To ensure that the system of critical infrastructure administration and protection applied in the SR is enough effective and efficient, it has to be similar to systems in other EU countries and has to respect historical experience and legal, economic, technical and technological, human, natural and other assumes. Responsibility for protecting ECIs falls on the Member States and the owners/operators of such infrastructures.

NATO is also dealing with these problems. The Senior Civil Emergency Planning Committee and its sub - committees have published a lot of documents and studies dealing with critical infrastructure protection with recommendations whereby the option of access to these recommendations and their total implementation is in the competence of each member state.

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