

SYSTEM OF RISK MANAGEMENT SECURITY AND PROTECTION HEALTH IN FRAME RENEWAL TRANSPORT INFRASTRUCTURE

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Abstract: *University of Zilina, has long-term experience with enhancing system of risk management. Very specific part is oriented on security and protection of health in frame of renewal transport infrastructure.*

Key words: *risk management, security and health system, renewal of transport infrastructure*

INTRODUCTION

As well as other European countries also the Slovak Republic tries to find optimal solution of transport problems. One of the most sophisticated methods is using of new software and hardware in real time.

The University of Zilina as a former transport oriented university has very good conditions for solving spread interdisciplinary tasks. Since 2003 was solved a great research project “Technology and Services of Intelligent Transport in Slovak Republic”. After its finishing in 2005 was continually started international project CONNECT oriented on solving problems with transporting of dangerous material.

The other problems are caused by influence of weather or other earth activities. During great floods, earthquake, volcanic eruption and other activities is important task to solve basic problems about system of renewal. The increase of resistance, about transport safety we started to solve questions about job security.

Every dangerous situation brings dangerous condition for drivers, policemen, firemen, aid men and the others participants on dangerous situation.



Fig. 1 Picture showing consequences of natural disasters

1. RISKS IN FRAME RENEWAL OF TRANSPORT INFRASTRUCTURE

Renewal of transport infrastructure includes renewal of transport way, renewal of transport vehicles and renewal of transport information and management systems. In the first and second group we need specific machines and technological solutions. The third group is renewal of information and management transport systems. This is the main topics of this paper.

Renewal of information and management transport systems is different in all transport subsystems. The content of this article will not

focus on air and water renewal of information and management transport systems.

Attention will be given to renewal of road and railway information and management transport systems. In standard situation we can use as a client, see fig.2

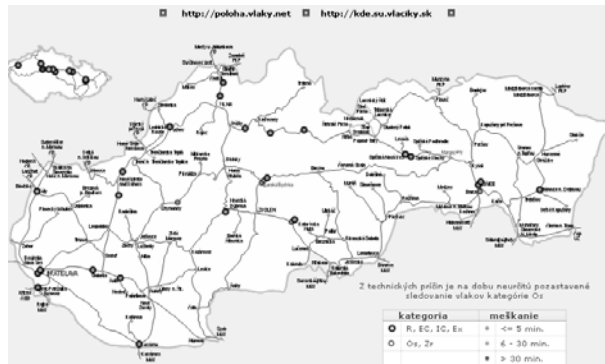


Fig. 2 Information system – location of passenger trains

Serviceability of railway station depends on function of station interlocking plant. If these equipments are not working properly, we have to decrease transport capacity value.



Fig. 3 Station interlocking plant

Track block system can be attacked for several times. In case of destroy of this specific line equipment transport capacity decreases rapidly as well as the value of whole transport network.

Renewal of management system in road transport is also oriented on point or on line objects. Point objects are crossroad, tunnel and line object is electronic sign of highway or at city ring.

All existing systems need from time to time control and checking of quality and utility. One of the suitable methods is risk analyse.



Fig. 4 Track block system

2. SYSTEM OF RISK MANAGE

System of risk analyse has as a part system of risk manage. Standard methods, in the first step identify risks (possible threat), next step is its comparison and next grouping to two great parts. The first group is acceptable and second one not acceptable risk. The second group we need to transform into first group. For solving risk from the first group we can use this sequence:

1. To prepare for risk action.
2. Define of action objects.
3. To identify threats.
4. To identify danger.
5. Checking of contemporary action with order.
6. Counting the probability of risk. Set of probability arising and solving extraordinary situation.
7. Checking the security level system. Define acceptable risk.
8. Action for decreasing or eliminate risk.
9. Write residual threats.
10. Inform employees about danger.
11. Check of using action, feedback.
12. Create repeat search of threat and danger.

3. RISK MERGE

Risk merge of security of work exist in categories:

1. **Insignificant risk** – acceptable action, we do not have to work out on other specific activities.
2. **Acceptable risk** – we can prepare activities for increasing security.
3. **Moderate risk** – we have to prepare specific actions.
4. **Undesirable risk** - level of security is not sufficient, we have to prepare actions as soon as possible.

5. Impossible risk – we have to stop all activities and remake system of activities.



Fig. 5 Risk place on transport infrastructure



Fig. 6 Good protection – minimal risk

4. COMMUNICATION AND INFORMATION SYSTEMS

Communication system guards linking with other parts of work security system. It creates connection with policies, checking risk, threat, educational system, audit and the other parts of activities and documents. To increase level of security we need:

Data files:

- Statistical data about illness and harm.
- Security cards of specific data – sensitive material.
- Environmental data about company.
- Monitoring data.
- Toxicology data.

Records:

- Protocols from work security board.
- Impulse and proposal from employees.

СИСТЕМА ЗА СИГУРНОСТ ПРИ УПРАВЛЕНИЕТО НА РИСКА И ЗАЩИТАТА НА ЗДРАВЕТО ПРИ ПОДНОВЯВАНЕ НА ТРАНСПОРТНАТА ИНФРАСТРУКТУРА

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Резюме: Университетът в Жилина има дългогодишен опит при усилване на системата за управление на риска. Една специфична част е ориентирана към сигурността и рзащитата на здравето в рамките на подновената транспортна структура.

Ключови думи: управление на риска, сигурност и здравна система, подновяване на транспортната инфраструктура.

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