

LOGISTIC SOLUTION OF CRISIS SITUATIONS

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Abstract: The detecting of sources and non-steady situations solution is very complicated and integrated problem in economic and social environs. The population fights against these dangers – in the past it was cindyniche and in the present it is the Securitology. For a correct and fast solution of crisis situations of various systems is necessary their knowledge, knowledge of disparities and means for renovation their stability in dependence on the type of threats. Prevention and adequate logistical preparedness are more modern access. This problem solves the complex logistics of crisis situations and modern conceptions of integrated logistical support, creation of logistical potential (state material reserves), system of crisis planning and economic mobilization of state. The correct allocation of adequate sources is the key for fighting power of crisis management by non-steady situations solution.

Key words: System, environment, non-steady situations, danger, cindyniche, crisis situations, securitology, disparities, types of threats, regulation, logistical readiness, logistics of crisis situations, integrated logistical support, state material reserves, crisis planning, economic mobilization.

1. INTRODUCTION

Every system is situated in the specific environs and defines its operation. The system represents a group of parts (elements, terms, components) among connections (relations, continuity), elements of effects (system) and methodical set of direct or indirect relations among them [1]. The elements of the system are in the several different substantial, energetic, financial and informational connection and they create specific, organizational, economic and social systems of the society. The social system is the most important in economic and sociable environment, which is dynamic and it is characterized by objective behaviour, secondary adaptability and complicated relations. The aim of the article is the identification of non-steady situations in economic and social environment and analysis of the possibilities of their solution, especially from logistical aspect.

2. MATERIAL AND METHODS

Detecting of non-steady situations sources and causal relations of crisis cases in economic and social environs is very complicated and complex problem. History of population is interlaced with disasters, epidemics, natural and economic catastrophes and also with the number of non-governmental events in various ways of our existence. The population tries to defend against these

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threats and looks for ways and forms of defence, protection and safeness of its life, material livestock and environment.

The Cindyniche as a science about dangers and their prevention originated already in 17. century in France at Sorbonne University . Cindyniche dealt with natural, technological and domestic risks and with the way of prevention and makes possible to recognize risks, predict some events and development, on due time to prepare their successful encompassment, maximum possible elimination of their results.

Necessary for the population survive are necessary the extreme solution of:

- global problems (heating, fouling, diseases);
- safety of sustainable development (energetic fastidiousness modification, rational utilization of natural sources and economics of knowledge);
- safeness (national, state, and civil, nutritive, energetic, informative, environmental communities)[2].

In the end of the last century was detected a new term Securitology. It is safety science, a science about safety and the aim of investigation is social and safety system and the way of its operation in a give economic and social environment in several various foreseeable and unforeseeable situations. The Safety system helps to solve non-steady situations by the members of crisis control of public administration, raises the effectiveness of integrated escape system improves providing of integrated logistical effort by the system of economic mobilization and reaction of civil protection of population to solution of crisis situations. For solution of these complicated systems (economic-social-politico-public system) it is suitable to use methods of operative research (linear and dynamic programming, network analysis, theory of games ...). Modelling and simulation of processes which are parallel in great hierarchical orderer systems with utilization of multicriterion examination of target behaviour of system are bringing relevant results [3].

3. RESULTS AND DISCUSSION

The solution of non-steady situations demands:

- knowledge of systems in which are created disparities;
- knowledge of sources evoking non-steady situations;
- definition of means for internal balance innovation.

Every system (technical, producing, social) is able to get to non-steady situations and it is by some backgrounds of environs influence or from internal causes. If we know better the system, then can we more effectively influence it. The Group of elements with objective elements, people, social and working groups, production sections and branches are very hard knowable and therefore we select them to subsystems or to relatively independent systems, which is more simply the examination. The balanced state at these systems is that state, in which all inputs and outputs of objective, financial and economic character, production, technological and working processes, fluently and continual transformation of production factors to the prepared products or provided services are proportional balanced. The external expression of internal balance system is a organizational integrity, economic and financial stability, business fruitfulness and satisfaction of employers or local population.

The expression of disparity is system passing to non-steady state, and its symbol is restriction of system function (till its non-functional). The knowledge of sources (origin, point of origin, intensity of course) and its initiation are important factor for non-steady situations solution. The types of risks are in the Fig.1.

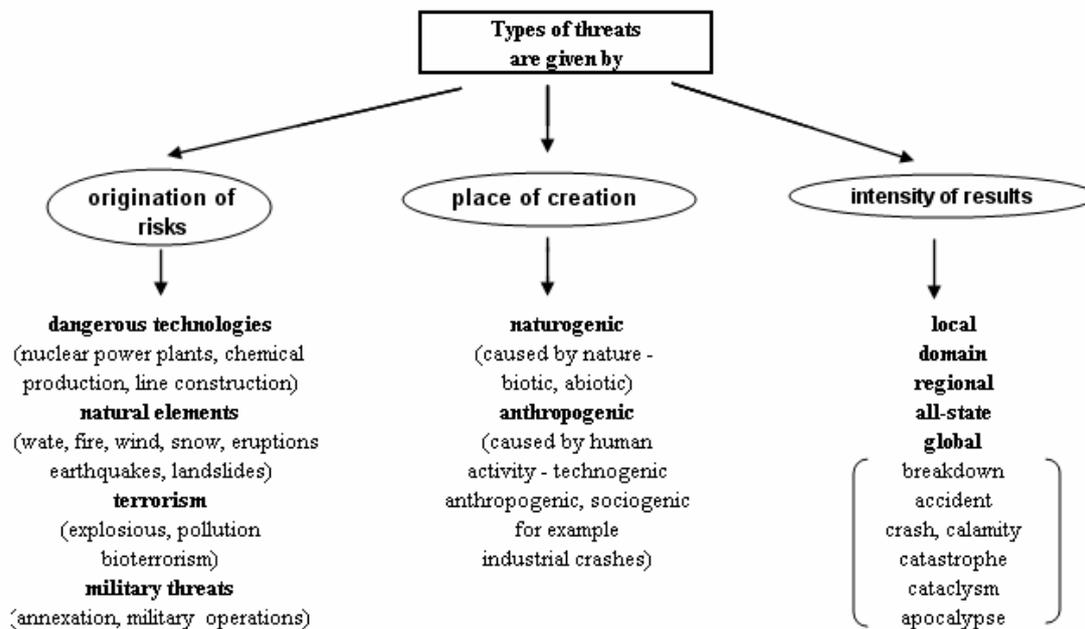


Fig. 1 Crisis situations created by natural and economic influences

The Knowledges of causes and results, times and areas, risks and rates, sources and utilizable information are the general starting point for non-steady situations solutions. Methods and means are the solution of these unbalances and by exploitation of there, we can get destabilizing system back to the balanced situation. It attains by the help of regulation systems. But the regulation removes only accrued variations on the system output. Preventive and purposeful tampering of production, technological and work process are more modern and more effective ways of non-steady situations solution in economic and social environs. In the process is necessary the synchronization of planning, and also organizational and directional activity on all levels – strategical, tactical and on operative level.

The Logistical preparedness (LoPr) presents the main task by non-steady situations solution, eventually by crisis situations. It has considerable influence to the effects and timeliness of interferences. Logistical preparedness is the function of logistical potential (LoPo), its arrangement and capacity (AaC), emergency putting (EmPu) and the other factors which we can express by this relation (1):

$$\text{LoPr} = f(\text{LoPo}, \text{AaC}, \text{EmPu}, \dots) \quad (1)$$

By protection before natural and economic catastrophes the determining task of logistics is increasing of logistical preparedness to sufficient level, i.e. creation of adequate sources (forces and means) to material – technical – humane and financial provision of activities of endangered (impacted) systems in non-standard condition (situations)[4].

Logistics of crisis situations (LCS) solves this problem complex and it is engaged in:

- creation of sources to crisis situations solution;
- their optimal exploitation;
- sufficient preparedness;
- optimal composition;
- rational dislocation.

Modern conceptions of logistical support of non-steady situations solution in economic and social environment are:

- social approach to logistical support;
- cooperation and coordination (mainly at operative level);
- common activity of putting on forces and means.

State and its elements of public administration and force branches and the other central authority of state administration (CASA) participate in creation of integrated logistical support (ILS). They solve complex problem of consumer and productive logistics which involve:

- creation of state material reserves (SMR) for crisis situations;
- engagement of operating and productive ability of the state;
- provision of state critical infrastructure (KI);
- property administration and protection of environment;
- state division technical supervision;
- development and modernization of economic and informative system.

Logistical preparedness is exercised by planning of logistical support in the primary stage of protection before non-steady situations within the frame of crisis planning (CP), mainly before civil emergency planning (CEP) and crash planning (ChP)[5].

4. CONCLUSION

The solution of non-steady situations in economic and social environment are very complicated and actual problems for better system of control by the frequency of disparities. Exact knowledge of system and knowledge of threats and risks mitigates the solution of effective implements for balance system renovation. Logistical preparedness of good allocated and enable potential, correct capacity and promptness of putting have the main task by disparities solution. The solution of non-steady situations demands logistical support and utilization of logistical progress for its encompassment.

LITERATURE

- [1] Gozora, V. (2007): Regionálne disparity a nerovnovážne stavy v špecifickom prostredí. Zborník – Riešenie regionálnych disparít v nerovnovážnych stavoch v prírodnom a hospodárskom prostredí. MERKURY, s.r.o., Nitra 2007, ISBN-978-80-89143-55-9.
- [2] Kysel'ová, K .a kol. (2009): Brownfield research in Slovakia. In: Annals of Faculty of Engineering Hunedoara: journal of engineering. – ISSN 1584-2665.-Vol.7,no 1(2009),p.115-118.
- [3] Petruf, M. (2007): Cindynika – súčasť vzdelávania v občianskej bezpečnosti. Zborník – Medzinárodný workshop ku 7. rámcovému programu EÚ, „Systém vzdelávania ako základ bezpečnostného výskumu“, ZSVTS – Bratislava 2007, ISBN--973-80-969710-0-8.
- [4] Petruf, M., Spišák, J. (2007): Úlohy logistiky pri ochrane pred prírodnými a hospodárskymi katastrofami. Zborník – 4. medzinárodná konferencia LOADO 2007 “Transport&Logistics”, TU Košice 2007, ISSN-1415-107X.
- [5] Novák,L.: Úvod do krízového plánovania. In: Zborník z medzinárodnej vedeckej konferencie „ Riešenie regionálnych disparít v nerovnovážnych stavoch v prírodnom a hospodárskom prostredí. SAPV Nitra 2007, ISBN-978-80-89143-55-9.,EAN 9788089143559.