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## RISK MANAGEMENT IN EMERGENCY SITUATIONS

### УПРАВЛІННЯ РИЗИКАМИ У НАДЗВИЧАЙНИХ СИТУАЦІЯХ

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**Introduction.** The risk management system is aimed at achieving the necessary balance between profit and reduction of losses of business activity and is intended to become an integral part of the management system of the organization, i.e. should be integrated into the general policy of the company, its business plans and activities. Only under this condition, the application of the risk management system is useful. However, there is a separate category of risks that are least studied by scientists – emergency risks (in the context of the enterprise).

**The purpose of the paper** is to study features of risk management in emergency situations, including in the context of the enterprise.

**Results.** Emergency – is the situation in a separate territory or entity on its or water object, characterized by violation of normal living conditions caused by catastrophe, accident, fire, natural disaster, epidemic, epizootic, epiphysis, use of the means of destruction or a dangerous event that (could) lead to a threat to the life or health of the population, a large number of casualties and casualties, significant material damage, as well as the inability of the population to reside in such territory or facility proceedings on her economic activity. General signs of emergency: presence or threat of death; significant deterioration of living conditions; considerable deterioration of human health and financial loss. An essential component of this management should be the emergency risk management system, which includes four stages: planning phase, response phase, recovery phase and mitigation phase.

**Conclusion.** It is necessary to solve the problem of management in emergencies not only by restructuring the functional structure and advanced training of managerial personnel but also by moving to a new management paradigm. The latter refers to a belief system based on the fundamental principles of situational management. According to these provisions, the construction of a control system in emergencies is a response to environmental influences of different nature. Moreover, the latter is considered as an open system. The main prerequisites for its successful functioning should be determined both inside and outside the system. Thus, the effectiveness of the operation of the system is associated with how well it responds to the external environment, how resistant it is to unexpected changes in the external environment, and how effectively it uses its inherent capabilities.

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**Вступ.** Система управління ризиками спрямована на досягнення необхідного балансу між прибутком і зменшенням втрат від ділової активності і покликана стати невід'ємною частиною системи управління організацією, тобто повинна бути інтегрована в загальну політику компанії, її бізнес-плани та заходи. Тільки за цієї умови застосування системи управління ризиками є ефективним. Однак існує окрема категорія ризиків, яка найменше вивчається вченими, надзвичайні ризики (у розрізі підприємства).

**Метою** статті є вивчення особливостей управління ризиками у надзвичайних ситуаціях, у тому числі в контексті діяльності підприємства.

**Результати.** Надзвичайна ситуація – це ситуація на окремій території чи суб'єкті господарювання на ній або водному об'єкті, яка характеризується порушенням нормальних умов життєдіяльності населення, спричинена катастрофою, аварією, пожежею, стихійним лихом, епідемією, епізоотією, епіфітотією, застосуванням засобів ураження або іншою небезпечною подією, що призвела (може призвести) до виникнення загрози життю або здоров'ю населення, великої кількості загиблих і постраждалих, завдання значних матеріальних збитків, а також до неможливості проживання населення на такій території чи об'єкті, провадження на ній господарської діяльності. Загальні ознаки надзвичайних ситуацій: наявність або загроза смерті; значне погіршення умов життя; значне погіршення здоров'я людини та економічні втрати. Важливим компонентом управління ризиками надзвичайних ситуацій повинна бути система управління, яка включає чотири етапи: фазу планування, фазу реагування, фазу відновлення та фазу пом'якшення.

**Висновок.** Необхідно вирішити проблему управління у надзвичайних ситуаціях не тільки шляхом перебудови

функціональної структури та підвищення кваліфікації управлінських кадрів, а й шляхом переходу до нової парадигми управління. Останнє стосується системи переконань, заснованої на фундаментальних принципах ситуаційного управління. Відповідно до цих положень, побудова системи управління в надзвичайних ситуаціях є відповіддю на впливи навколишнього середовища різного характеру. Більше того, остання розглядається як відкрита система. Основні передумови її успішного функціонування повинні бути визначені як всередині, так й зовні. Таким чином, ефективність функціонування системи пов'язана з тим, наскільки добре вона реагує на зовнішнє середовище, наскільки вона стійка до несподіваних змін зовнішнього середовища та наскільки ефективно вона використовує свої потенційні можливості.

**Ключові слова:** надзвичайні ситуації, ризик, управління ризиками

**Keywords:** Emergency Situations, Risk, Risk Management

## INTRODUCTION

The risk management system is aimed at achieving the necessary balance between profit and reduction of losses of business activity and is intended to become an integral part of the management system of the organization, i.e. should be integrated into the general policy of the company, its business plans and activities [1-4]. Only under this condition, the application of the risk management system is useful.

Risk management involves creating the necessary business culture and infrastructure to:

- identify the causes and main drivers of the risks;
- identification, analysis and assessment of risks;
- making decisions based on the evaluation made;
- development of anti-risk management impacts;
- reducing the risk to an acceptable level;
- organization of the implementation of the planned program;
- monitoring the implementation of planned actions;
- analysis and evaluation of risk decision outcomes

[5-7].

The introduction of risk management systems into the practice of enterprises allows to ensure the stability of their development, to increase the validity of decision-making in risky situations, to improve the financial position through the implementation of all types of activities under controlled conditions.

However, there is a separate category of risks that are least studied by scientists – emergency risks (in the context of the enterprise).

**THE PURPOSE** of the paper is to study features of risk management in emergency situations, including in the context of the enterprise.

## RESEARCH METHODS

Methodological and informational basis of the work is scientific works, materials of periodicals, Internet resources.

## RESULTS

The Ukrainian legislation defines: Emergency – is the situation in a separate territory or entity on its or water object, characterized by violation of normal living conditions caused by catastrophe, accident, fire, natural disaster, epidemic, epizootic, epiphysis, use of the means of destruction or a dangerous event that (could) lead to a threat to the life or health of the population, a large number of casualties and casualties, significant material damage, as well as the inability of the population to reside in such territory or facility proceedings on her economic activity [8].

The international definition is not very different from

the Ukrainian, although it is more concise: *an emergency* is a situation that poses an immediate risk to health, life, property or the environment [9].

Emergencies that can occur and harm the functioning of the objects of economy and livelihoods of the population are divided by the following main features:

- by industry;
- the scale of the possible consequences.

The primary basis of the classification is the number of consequences, technical and material resources required to eliminate them.

*Emergencies of anthropogenic nature* are the result of transport accidents, catastrophes, fires, unprovoked explosions or their threat, collisions with the release (risk of publication) of dangerous chemical, radioactive, biological substances, sudden destruction of structures and buildings, and emergency power engineering systems, accidents on dams, dams and the like.

*Emergencies of a natural nature* are the consequences of dangerous geological, meteorological, hydrological, marine and freshwater phenomena, degradation of soils or subsoil, natural fires, changes in the status of the air basin, infectious diseases of humans, farm animals, mass destruction of diseases of agriculture resources and biosphere, etc.

*Anti-constitutional Emergencies* are the actual or actual threat of a terrorist act (armed attack, capture and detention of essential objects of nuclear charters and materials, communications and telecommunications systems, assault or attempt on an aircraft or ship's crew), abduction (attempt to steal) or destruction ships, installation of explosive devices in public places, theft of weapons, detection of obsolete munitions and the like.

*Emergencies of a military nature* are situations related to the consequences of the use of weapons of mass destruction or conventional means of destruction, during which secondary factors of population damage result from the destruction of nuclear and hydroelectric stations, warehouses and repositories of radioactive and toxic substances and waste, waste, potent poisonous substances, toxic waste, transport and engineering communications.

Depending on the territorial distribution, the amount of damage caused or expected, the number of people killed is distinguished by four levels of emergencies - nationwide, regional, local and objective.

*The emergence of a state-level* is an emergency that develops in the territory of two or more areas or threatens transboundary movements, and when materials and technical resources are needed to eliminate them beyond the scope of a particular area, but do not less than 1% of the corresponding budget expenditures.

*The emergence of regional level* is an emergency that develops in the territory of two or more administrative districts (cities of regional importance) or threatens to be transferred to the territory of the adjacent area, as well as when its material and technical resources in volumes are required for its elimination exceeding the own capacity of a particular district, but not less than 1 % of the expenditures of the respective budget.

*The emergence of a local level* is an emergency situation that goes beyond a potentially dangerous object, threatens the spread of the situation itself or its secondary effects on the environment, neighbouring settlements, engineering structures, as well as in the event that material and technical resources in excess of the facility's own capabilities. The local level also includes all emergencies that occur at housing and communal areas and others that are not in the approved lists of potentially dangerous objects.

*The emergence of an object-level* is an emergency that does not fall within the above definitions, that is, it unfolds on the territory of the object or on the object itself, its consequences do not extend beyond the purpose or its sanitary protection zone.

General features of the emergency:

- the presence or threat of death
- a significant deterioration in living conditions
- considerable deterioration of human health
- causing economic losses.

To manage risk, an approach based on subjective judgments and ignoring the socio-economic aspects that largely determine the level of security of an individual and society is usually used. The scientific approach to decision making for the sustainable development of society, that is, to ensure the safety of man and his environment in conditions of improving the quality of life of each individual, requires balanced and unbiased thinking based on a quantitative analysis of the risk and consequences of decisions. These decisions are made as part of a risk management system.

Based on the preceding, risk management should be carried out in two main areas:

1. Permanent (or regular) monitoring of many specific parameters of hazardous facilities, identifying the pre-

quisites for emergencies and predicting the further development of the current location; organization of urgent preventive measures aimed at preventing possible accidents at the facility or mitigating their severity; if the accident, however, has already occurred – planning and implementation of actions to restore the normal functioning of industrial facilities and eliminate the consequences of emergencies.

2. Planning and implementation of a system of administrative and legal and economic measures aimed at reducing risk; organization of the collection and storage of data on hazardous facilities, their comprehensive analysis and identification of the most "bottlenecks" requiring the most significant attention (ranking of enterprises according to the degree of danger); improving the organizational structure of units responsible for emergency response.

Emergency Risk Management is a systematic process of identifying, analysing, assessing, treating and mitigating risk to people, property and the environment. It involves functions such as risk identification, risk measurement and evaluation, risk control, and risk handling [10].

Many emergency protocols apply to emergencies, which usually begin with planning before an emergency occurs and consists of several steps:

1. The planning phase starts with readiness when management decides how to respond to a particular incident or set of circumstances. Ideally, this should include command and control and division of activities between departments. This avoids potentially harmful situations.

2. The response phase – Execute the plans set out in the previous stage, but may end up improvising some areas of their response (due to planning phase gaps, which are inevitable due to the individual nature of most cases).

3. The post-incident recovery phase, when management helps eliminate the incident and its aftermath.

4. The final step in the circle is mitigation, which involves taking action to make sure that recurrence is not possible, or creating additional plans to reduce the damage. This should return to the ready stage, with updated plans for future emergencies, thus completing the cycle (Fig. 1).

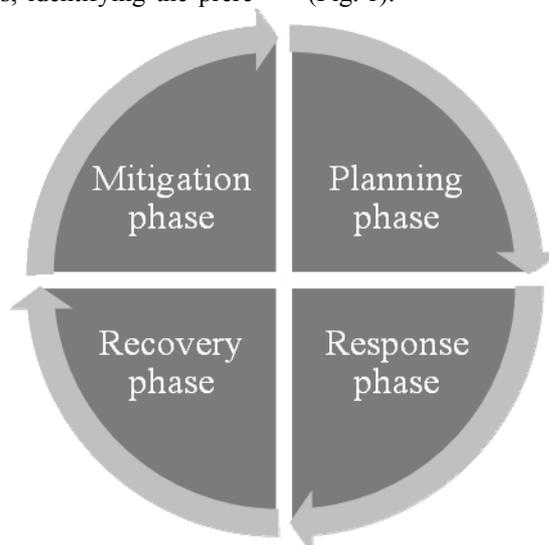


Fig. 1. Phases in emergency management

An essential component of this management should be the emergency risk management system (natural, human-made and social security management).

To manage emerging risks, you should develop:

- a system for monitoring, risk analysis and forecasting of emergencies as the basis for emergency risk reduction activities;
- emergency prevention system and mechanisms of state risk regulation;
- emergency response system, including emergency response, technical means and technologies for emergency rescue operations, primary life support and rehabilitation of the affected population;
- training system for senior management, specialists and the public in the field of risk reduction and mitigation of emergencies.

### CONCLUSIONS

It is necessary to solve the problem of management in emergencies not only by restructuring the functional structure and advanced training of managerial personnel but also by moving to a new management paradigm. The latter refers to a belief system based on the fundamental principles of situational management. According to these provisions, the construction of a control system in emergencies is a response to environmental influences of different nature. Moreover, the latter is considered as an open system. The main prerequisites for its successful functioning should be determined both inside and outside the system. Thus, the effectiveness of the operation of the system is associated with how well it responds to the external environment, how resistant it is to unexpected changes in the external environment, and how effectively it uses its inherent capabilities.

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