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### **SCIENCE OF POST-INDUSTRIAL SOCIETY: GLOBALIZATION AND TRANSFORMATION PROCESSES**

held on July 22<sup>th</sup>, 2022 by

NGO European Scientific Platform (Vinnytsia, Ukraine)

LLC International Centre Corporate Management (Vienna, Austria)



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**EUROPEAN  
SCIENTIFIC  
PLATFORM**



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## METHODOLOGICAL AND ORGANIZATIONAL ASPECTS OF CREATING A RISK ASSESSMENT SYSTEM IN THE FIELD OF CIVIL PROTECTION


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*Summary.* The crisis situation caused by the spread of coronavirus disease (COVID-19) in the world and in Ukraine raises the issue of building national stability, forming an appropriate legal framework and organizational system, development of its individual components, including crisis management. The article presents a comprehensive model of introduction of a multilevel threat

*assessment system in Ukraine. It aims to implement in our country the best world practices, taking into account the peculiarities of the organization of the national security system of Ukraine, regulatory and legal support, existing experience, as well as the goals of state and society. To perform these tasks, the best world practices of functioning of such systems and current legislative documents of Ukraine are analyzed. This system should become an effective decision-making tool in the field of national security and civil protection, an important element of strategic planning, will help increase the level of readiness of the state and society to respond to a wide range of threats. The functioning of such a system is especially relevant at the initial stage of building national stability, when the relevant culture and political and managerial processes are just being formed. The article presents a methodology that can be used to assess threats to Ukraine's national security and improve strategic planning. This takes into account the recommendations for risk assessment set out in DSTU IEC / ISO 31010: 2013. Based on the legislation of Ukraine, a model of organizational support of the system of assessment of threats to national security has been developed, the implementation of which involves several stages. It is investigated that the implementation of the proposed comprehensive measures will significantly increase the level of readiness of the state and society to respond to a wide range of threats of various origins. In addition, it will ensure the continuity of critical processes in the country, and will be a significant step towards improving strategic planning in Ukraine.*

**Keywords:** risk management, national security, risk assessment, emergencies, risk register, threat ranking.

**Introduction.** The effective functioning of the system for assessing the risks of emergencies is an important element of strategic planning and ensuring national sustainability. Such systems are called national because they operate at the state level, cover processes related to the security of the state, society and every citizen, and are based on broad interagency interaction and cooperation.

The use of modern methods and technologies for assessing the risks of emergencies, modeling of crisis situations, development of scenario forecasts - all this allows to increase the reliability of the results, and - to form a broad evidence base for further analysis [1]. The modern world is characterized by rapid and unpredictable changes in the security environment, and therefore, the threat picture is much less valuable in itself than typologies, multi-criteria matrices, catalogs of models and scenario forecasts developed on its basis.

They are needed to further define protocols for concerted action to respond to threats of different nature and origin, as well as to plan appropriate measures.

In general, national systems for assessing the risks of emergencies can be represented at the national, regional and local levels.

The crisis situation caused by the spread of coronavirus disease (COVID-19) in the world and in Ukraine raises the issue of building national stability, forming an appropriate legal framework and organizational system, the development of its individual components, including crisis management.

In addition, it should be noted that the task of establishing a regular multi-level national assessment of risks and threats to national security has been identified as a priority under Objective 1.6.4 "Ensuring national sustainability on an ongoing basis" of the Annual National Program under the auspices of the NATO-Ukraine Commission for 2020 [2].

**Analysis of recent research and publications.** After analyzing the world

practices of assessing threats to national security and the organizational structure of emergency risk assessment systems in countries such as the United Kingdom [3,4], the Kingdom of the Netherlands [5] and New Zealand [6], as well as Ukrainian regulations [7,8] and scientific publications on this topic [9-11], we can conclude that in Ukraine it is advisable to create a system for assessing the risks of emergencies, which will identify dangerous trends and threats to national security, as well as vulnerabilities in the state and society.

**The purpose of the article.** The main purpose of the article is to present a methodology that can be used to assess threats to national security of Ukraine and improve strategic planning, and a model of organizational support system for assessing the risks of emergencies developed taking into account existing regulations.

**Presenting main material.** Taking into account that ensuring national stability is one of the priorities of the state policy of Ukraine at the present stage, the topical issue is the creation of a national system for assessing the risks of emergencies as an element of the system for ensuring national stability.

In Ukraine at present, various ministries and agencies carry out threat assessments according to their areas of responsibility, using their own methods, criteria and approaches. The main problem is that the evaluation results obtained in this way are difficult and sometimes impossible to compare. This makes it impossible to objectively rank threats, understand their interactions, group by different criteria, determine the cumulative effects on target groups, and so on. In view of this, the definition of priority measures of state policy to ensure the readiness and effectiveness of responding to threats at different stages of their implementation is with a great deal of subjectivity. It also significantly complicates the development and implementation of universal protocols for responding to emergencies or crises at different stages of their deployment.

National risk and threat assessment systems operate in many countries around the world. They allow identifying dangerous trends and threats to national security, as well as vulnerabilities in the state and society. The obtained information is used by the state leadership and authorized state bodies to make decisions on the formation of appropriate state policy, planning measures to increase preparedness for a wide range of threats, development of necessary capabilities, as well as the allocation of state resources. In developed countries, the national system for assessing the risks of emergencies is an element of strategic planning in the field of national security.

The methodology for risk assessment varies from country to country. According to the results of the study of the best world practices, several main stages of the relevant work in this area have been identified.

**The first stage is "Identification of the greatest threats to national security (screening)".**

There are two main approaches to this. The first involves assessing all existing threats on the basis of probability and severity. Usually the Delphi method is used for such analysis. As with any expert survey, the disadvantage of this method is a certain subjectivity of assessments, different professional levels of experts, the possibility of manipulation by the organizational group, which summarizes the



results, and so on.

The second approach assumes that the security environment is first analyzed in terms of certain areas (eg, economic, social, socio-political, environmental, etc.) according to certain criteria (indicators) in the dynamics. Selection criteria may be different in each country. Certain countries identify areas of national security where ongoing monitoring and risk analysis are mandatory.

This allows to identify dangerous trends, approaching indicators to the critical limit, as well as to narrow the list of risks for further analysis on the criteria of probability and severity of consequences.

The negative feature of both approaches is that they are based mainly on retrospective analysis. At the same time, the sample of threats includes mainly those that have already taken place before or are well known. And unpredictable, unpredictable events are not taken into account.

Other problems with relevant research are often the lack of analysis of the interactions of risks, especially if they relate to different areas, or the incompatibility of estimates obtained by different methods (eg, quantitative and qualitative).

**The second stage "In-depth analysis of possible consequences, development of scenario forecasts, modeling".**

Each risk has certain consequences: dangerous effects on the lives of people, society and the state, which can be both typical for a certain group of risks, and atypical; creating new opportunities that may have some development potential.

The set of threats and their consequences is a multidimensional matrix that is used for further risk analysis.

The scale of the possible consequences of each threat should be assessed in terms of severity, quantity, duration, and so on. It is necessary to determine the limit of acceptable risk for the state and society.

Taking into account these data, scenario forecasts are developed, crisis situations are modeled. Using the methods of comparative analysis, the ranking of scenario forecasts is performed. Various criteria and assumptions can be used for this. After ranking, the priority scenario forecasts are considered in three variants: optimistic, pessimistic and optimal. This takes into account the tolerable risk limit.

Timely decision-making on risk reduction measures is an important element of the relevant public policy, which should be developed taking into account the tolerable risk limit and the developed scenario forecasts.

General recommendations for risk assessment and management are contained in the relevant international ISO standards. Some of these standards have been adapted in Ukraine, in particular DSTU IEC / ISO 31010: 2013. However, it should be borne in mind that they contain general recommendations and do not exclude the possibility of further development and clarification of their provisions for different industries.

**The third stage is "Capability Assessment, Identification of Vulnerabilities".**

In some countries, risk assessment is completed after the first or second stages and does not take into account the state of capabilities needed to address the relevant threats. However, this stage is extremely important in the context of further planning of emergency and crisis response measures and increasing the level of preparedness.

The lack or inadequacy of adequate capabilities can pose a particular threat to national security. It is appropriate to assess such capabilities during or on the basis of reviews of the security and defense sector and individual security components, including in the context of ensuring the continuity of critical functions of the state, proper organization of crisis management, etc.

The necessary precautions should also be taken into account when developing and comparing scenario forecasts, in particular as a correction factor.

It should be noted that the current opportunities to assess risks and compare them with the capacity of the state and society to combat these risks are practically not used by countries to develop financial strategies to deal with emergencies and crises.

#### **The fourth stage "Integrated mapping, geospatial support".**

The analysis of geospatial data is a modern high-tech method of assessing the security situation and identifying threats. It makes it possible to combine existing databases in the country (meteorological, geological, infrastructural, medical, etc.) into a single geographic information system that operates in real time and allows you to make forecasts based on the collected data. The general operational picture is established on the basis of information gathering, its sorting and generalization. Its corresponding support is carried out. Information on the development of the situation is provided to all authorities involved in the liquidation of emergencies. Such information system can be filled with data, in particular, through a network of state situational centers.

The advantage of such a system is that it allows you to analyze many risks and threats in space and time, take into account their interactions, compare with existing capabilities. This increases the efficiency of interagency cooperation, eliminates duplication in the work, creates conditions for decision-making based on real data.

The problematic issues in the geospatial system may be difficulties in integrating different databases and information systems, cybersecurity and information security, data management, storage, processing methods, sharing access to the relevant information system, its technical support and more.

#### **Fifth stage "Dissemination of risk assessment results, visualization".**

Most often, a comprehensive report on identified threats, possible scenarios of crisis situations and their consequences (or most of it) is considered confidential and not subject to disclosure. As a rule, the leading organization also maintains a public register of risks. It explains in a simple and accessible form to citizens what dangers they may face in everyday life, what manifestations and consequences they may have, how to react to them properly and to which authorized bodies they should turn. Such National Risk and Threat Registers can be found in the public domain, in particular on the official government websites of the United Kingdom [3,4], New Zealand [6], and the Kingdom of the Netherlands [5] and other countries.

This makes it possible to increase the level of awareness of the population about the nature and manifestations of the main threats and dangers, as well as the degree of readiness for the necessary response.

**The sixth stage is "Monitoring and re-evaluation of risks based on lessons learned (lessons learned)."**

The results of risk and threat assessments should be periodically reviewed and



updated. In most of the countries studied, this frequency is 1 time in 5 years.

The effectiveness of the national risk and threat assessment system depends on the proper legal and organizational support of the relevant processes. The main principle of organizing such a system is broad interdepartmental cooperation.

Based on the study of best world practices, as well as the peculiarities of the organization of the national security system of Ukraine and the analysis of relevant legislation of Ukraine, it is advisable to propose an appropriate model for developing a multilevel system for assessing threats to national security in Ukraine.

In most countries, a government body or institution is responsible for coordinating activities in the field of risk and threat assessment and maintaining a national risk register. Also, special regulations establish the powers, responsibilities and accountability of state and local authorities, institutions and organizations involved in this process.

The organization of the risk and threat assessment system, coordination of the actions of its participants and other relevant functions should be entrusted to the Center for National Security Threat Assessment of Ukraine (Center).

The center should be formed on the principle of departmental representation, provide scientific-analytical and forecast support of the planning process in the areas of national security and civil protection.

An important task of the Center should be the preparation of annual reports on the results of the assessment of current and projected threats to Ukraine's national security. Once every five years, a comprehensive report should be developed on the results of the assessment of current and projected threats to Ukraine's national security and the state of relevant capabilities. This document should become the basis for the development of a new version of the National Security Strategy of Ukraine or clarification of its individual provisions.

In addition, once every five years it is necessary to analyze the compliance of existing capabilities with identified threats and forecast scenarios for their implementation and development of crisis situations, as well as on the basis of information received from authorized state bodies on the results of a comprehensive review of the security sector and civil protection identifying vulnerabilities and identifying capacity building needs.

The Center should also be tasked with establishing, maintaining and periodically updating the National Threat Register as a publicly available version of the results of Ukraine's national security threat assessment.

The Center should include the head, secretary and other members of the Center, the Methodological Group. Deputy heads of executive bodies, state institutions, and scientific institutions should be authorized members of the Center.

**Conclusion.** In Ukraine today, various ministries and agencies carry out threat assessments in their areas of responsibility, using their own methods, criteria and approaches. The main problem is that the evaluation results obtained in this way are difficult and sometimes impossible to compare. Interagency cooperation in this area, taking into account the results of scientific research in practice, are insufficient. Existing methodological shortcomings in threat assessment based on the experience of past events lead to a decrease in the reliability of forecasts due to the inability to reflect new challenges that did not occur before. This was confirmed in

the case of the spread of COVID-19 in 2020.

The emerging crisis has revealed not only in Ukraine but also in many countries around the world a number of problems in the field of crisis management and readiness to respond to new threats

Based on the analysis of legislation in the field of national security of Ukraine, the peculiarities of governance and goals and objectives of state development, an optimal model of formation of a system for assessing threats to national security in Ukraine has been developed.

This system should become an effective decision-making tool in the field of national security and crisis management, an important element of strategic planning, will help increase the level of readiness of the state and society to respond to a wide range of threats. The functioning of such a system is especially relevant at the initial stage of building national stability, when the relevant culture and political and managerial processes are just being formed.

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