

National Resilience as A Determinant of National Security of Ukraine

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Abstract

The purpose of this study is theoretical and methodological substantiation, deepening of conceptual provisions and development of scientific and practical recommendations for the formation of an integrated sector of national security and defense based on the principles of national resilience. The relevance of this study is due to the need to build national resilience to address the main problems of national security of Ukraine. The main components of national security and resilience development of the country on the basis of global indices are considered, the main patterns and key problems of national security of Ukraine are highlighted. Studies have found, which is a condition for providing national security is the formation of an appropriate level of internal resilience of the state, the basis of which is economic resilience, the rule of law, modern infrastructure, education and medicine. It is established that Ukraine is characterized by a low level of management in the public administration system, a high level of corruption, low efficiency of government decisions, non-compliance with current legislation in various spheres of life. It is proved that it is necessary for the formation of an integral sector of national security and defense a balanced combination of the capabilities of the main elements of the national security system and the objects of national resilience. Priority areas for building national resilience have been identified for Ukraine: creation of a multilevel risk assessment system; improving strategic planning, analysis and crisis management; developing the resilience potential of local communities and regions. A formalized model of an integrated national security system is proposed, based on the principles of resilience of regional security parameters of all regions of Ukraine and a resource-oriented approach to the transition of the existing state of regional security to the desired state.

Keywords: national resilience, national security, security environment, risks, threats.

1. Introduction

1.1 Relevance of the topic and problem statement

The national security has a significant impact on the country's image (Mikhnevychet al., 2020), which is especially relevant in the context of globalization. Global threats (for example, the threat of the spread of COVID-19) and local threats (military aggression in eastern Ukraine) require coordination and cooperation at all levels of the national security system. As the consequences of recent events have shown, Ukraine has a problem of inconsistency of procedures and mechanisms, there is a lack of a clear division of responsibilities in responding to global threats or complex threats at the national level.

The lack of integrity of the security and defense sector has led to Ukraine's unwillingness to counter the current threats realized in the concept of hybrid wars, resulting in an acute situation of existential crisis (Gorbulin, 2017).

The Ukraine's national security system is built on the basis of departmental approaches, and the state bodies responsible for their functioning take care mainly of their

“threat sets”, have their own response algorithms, use disparate terminology, and so on. Therefore, the problem of integrated and mutually agreed interaction of all agencies in ensuring national security is relevant. The national security risk management system needs to be modernized. National resilience and collective defense must complement and reinforce elements of joint efforts (Shea, 2016).

Therefore, the need and non-alternative modernization of national security systems, synchronization on innovative approaches and taking into account modern windows with significant security were used. The condition for the modernization of the national security system is the integration of the principles of sustainability in the design of the security environment (Holovaty, 2014). Thus, the urgency of the problem of forming an integrated sector of national security and defense on the basis of the principles of national resilience determined the choice of the research topic, defined its purpose and objectives. The purpose is theoretical and methodological substantiation, deepening of conceptual provisions and development of

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scientific and practical recommendations for the formation of an integrated sector of national security and defense based on the principles of national resilience.

The object of study is the process of forming a modern model of functioning of the integral sector of national security and defense on the basis of the principles of national resilience. The subject of research is a set of theoretical, organizational, methodological and practical provisions for determining national resilience in the formation of an integrated sector of national security and defense of Ukraine.

The main idea of the study is that the national security system needs to be modernized on the basis of a systematic approach to the formation and qualitative changes with a focus on the principles of national resilience. In order to solve the problem of forming an integrated sector of national security and defense on the basis of the principles of national resilience, it is suggested that taking into account in the management of the results of comparative analysis of deviations of the selected indicators from the normative (reference) values.

That is, hypothesis of this study is as follows:

reflect the main processes of formation of an integrated sector of national security and defense on the basis of the principles of national resilience in the dynamics allow risk management indicators underlying indicative management, in which management decisions are made based on analysis of the situation by identifying the direction of the process, taking into account the bifurcation moments of the current period. In order to solve the problem of forming an integrated sector of national security and defense based on the principles of national resilience, it is necessary a balanced combination of the capabilities of the main elements of the national security system and the objects of national resilience, as a scenario of a smooth transition to an integrated sector of national security and defense based on the principles of national resilience.

2. Materials and Methods

2.1 The essence of the determination of national security

Evolution in the understanding of the term security, according to the transformation of the main determinants, causes a shift in the emphasis and content of public authorities in the field of national security in a new direction – ensuring resilience (Directive, 2013). National security is the protection of state sovereignty, territorial integrity, democratic constitutional order and other national interests of Ukraine from real and potential threats (Law of Ukraine, 2018).

Determination – the process of interaction of diverse social and natural factors (determinants), the interaction of which forms the security environment and affects the level of national security. The doctrine of the determination of national security is based on the principles of complexity, systematization, multilevelness and continuity of the process of reproduction of threats to national security. Scientific knowledge about national security is formed on the basic categories: determinants of

threats (risks), determinative connections, synergetic effects from mutations and interactions of determinants. Determinants of national security (security factors) – phenomena and processes, the existence, action (interaction) of which affects the preservation, deterioration of national security. They are classified by level of reproduction, nature, mechanism of action, social content and other criteria. Interpretation of any phenomenon, process of objective reality or subjective states, as a determinant of national security, involves establishing the type of relationship between them and the level of national security. In scientific research and practice of countering threats and ensuring national security, such types are distinguished as causal, conditional, functional, correlation, connection of states, etc. There are methodological prerequisites for the analysis of the determination of national security (Bondarenko et al., 2019; Kuznetsov et al., 2020; Mikhnevych et al., 2020; Weaver et al., 2020):

- Counter nature of the determination of national security, ie the impact of the interaction of social institutions, resulting in the formation of a third-order structure, which itself becomes a threat to national security.
- Lack of rigid links between the interacting elements in the structure of national security determination, when the intermediate element in the determination process is the category of security environment.
- Historical / genetic conditionality of the nature and result of determination of national security, which is associated with the presence of a national determination complex of national security, in terms of glocalization (conservation and strengthening of local patterns of social processes: political, economic, cultural and psychological). In this aspect, the determination of national security is national resilience.

Resilience issues are addressed in the EU's Global Strategy for Foreign and Security Policy (Strategy, 2016) and NATO's National Resilience Papers (Kramer et al., 2015). The principle of resilience (Article 3 of the Alliance Treaty) is defined as the ability of society to withstand threats, to recover after them, ie combines civilian readiness and military capabilities. Resilience as a civic preparedness in NATO member countries has been identified as a priority for collective security and defense. Understanding the concept of resilience, from the standpoint of the readiness of the national security system to combat hybrid threats, is the study of Thiele (2016), which analyzed four “focus areas” to increase resilience, and justified the need for “centers of resilience”. The concept of resilience is considered as a value, quality and desirable characteristic of society and the state (system) and as its main element (Svitkova, 2017), which serves to distinguish two tools for formalizing the activities of the national security system:

- requirements for the ability to respond to different types of threats throughout the range of possible developments (anticipation – preparation – prevention – response – recovery), which forms a request for a methodological dimension;

• target state for the formation of system capabilities from the standpoint of purposeful measurement of performance.

The participants of the Warsaw Summit of Allied Leaders (2016) identified the following basic requirements for national resilience in terms of civilian preparedness: ensuring continuous governance and the provision of basic public services; resilience energy supply; the ability to effectively control the movement of large masses of the population; resilience supply of food and water; ability to overcome problems caused by a large number of victims; stable civil communication systems; resilience public transport systems. The term “resilience” in Ukraine has been implemented in the Concept of creating a state system for critical infrastructure protection (Concept, 2017). However, there is a need to clearly distinguish between tasks in the field of critical infrastructure resilience and national resilience, the latter category is a more complex system, which includes, among other things, the resilience of critical infrastructure.

3. Methodology

To achieve the goal of this study, a system of general scientific and special methods and approaches was used, in particular: generalization, systematization, empirical research, systematic and logical approach – to develop theoretical foundations for the formation of an integrated sector of national security and defense based on the principles of national resilience, in determining the essence of the categories, to form approaches to the classification of security risks; historical, dialectical, methods of system-structural analysis and synthesis – for analytical assessment of the security environment and identification of its impact on the formation of an integrated sector of national security and defense based on the principles of national resilience; scientific approaches to identifying factors and assessing deviations in the development of the national security and defense sector from the targets, which are based on the principles of abstract-logical method, system and process approaches, situational analysis of risk management; methodological principles for assessing the level of adaptability, balance and efficiency of the elements of the national security and defense sector and objects of national resilience; methods of cognitive analysis of balancing the goals of forming an integrated sector of national security and defense based on the principles of national resilience and the choice of target direction of strategic change.

4. Results

4.1. National resilience of Ukraine, impact on national security

Currently, in world practice there is no single universal quantitative indicator that would assess the state of national security and national resilience of the state and society. Among the indicators of a comprehensive analysis of the main components of national security and sustainable development of the country, we can highlight

the Sustainable Society Index, which is an integral indicator and includes 21 indicators that assess the country's sustainability by the following components: social (human well-being), environmental (environmental well-being), economic (economic well-being). The resilience of the country is assessed from the standpoint of balanced development on the principles of “5 R” circular economy:

1. Restriction of energy and material consumption (Reduction).
2. Replacement of non-renewable resources.
3. Recovery of the required components from recycled waste (Recovery).
4. Recycling of waste (Recycling).
5. Reuse of products (Reuse).

For Ukraine, sustainability indicators are presented in Figure 1.

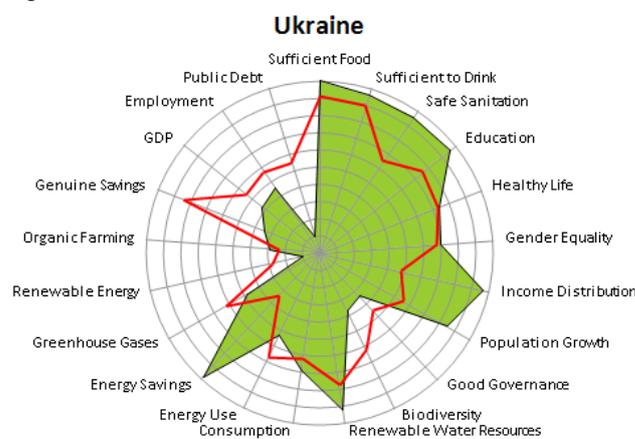


Fig. 1. Sustainable Society Index, SSI, Ukraine (Sustainable Society Index)*

*The spiderweb shows the score of each of the 21 indicators of the country in green, on a scale of 1-10 (10 = sustainable, 1 = not sustainable). The red line is the weighted average score of all countries.

According to the results of the analysis (Sustainable Development Analysis, 2019), Ukraine (Q = 0.476) is included in the cluster of countries with a low rate of sustainability (0.178 < Q < 0.486). As can be seen from the above data, Ukraine has very low indicators of economic well-being. Compared to other countries, Ukraine has a low level of resilience (Figure 2).

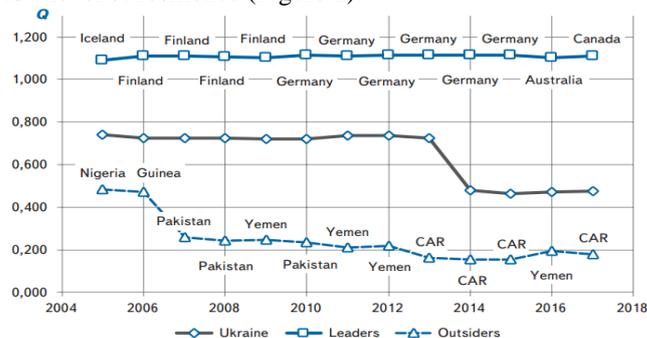


Fig. 2. Indicators of sustainability of Ukraine's

development, in comparison with other countries
(Sustainable Development Analysis, 2019)

The reason for the low importance of Ukraine's stability is:

- high level of conflict intensity (military, political, ideological, social) in the country;
- very low rate of economic development (I = 0.311, ie 134th place among 137 countries).

In recent years, the latest social and economic challenges have become relevant for Ukraine, which have caused uncertainty and instability. The annexation of the Autonomous Republic of Crimea, hostilities in the temporarily occupied territories of Donetsk and Luhansk oblasts, forced displacement, demographic crisis, political crisis, institutional crisis, health problems are events for which the national security system was not ready. Modern conflicts in Ukraine affect much wider spheres of society and are not limited to the military component.

Thus, according to the report of the Institute of Economics and Peace (Global Peace Index 2020), Ukraine in 2020 ranks 148th out of 163 countries in terms of peace. The Global Peace Index includes 23 indicators in the categories: “security in society”, “ongoing conflicts” and “militarization”. Regarding security in society, Ukraine is characterized by a high level of killings and a large number of prisoners. Ukraine ranks 27th in terms of the economic cost of violence, and the country's position in terms of militarization and social security is low. In addition, there is a large number of police officers, the perception of crime. When assessing the level of militarization, the number of servicemen, arms expenditures in relation to GDP and arms exports were estimated.

Thus, the condition of national security security is the formation of an appropriate level of internal stability of the state, the basis of which is economic stability, the rule of law, modern infrastructure, education and medicine.

It is obvious that public administration directly affects the level of national stability. To assess the effectiveness of the public administration system, we conducted an appropriate analysis of the impact of public administration quality on national sustainability, according to Worldwide Governance Indicators (WGI, 2019). This indicator includes six key indicators of public administration: control over corruption; Rule of Law; quality of state regulation; government efficiency; political stability and absence of violence / terrorism; the right to vote and accountability of citizens. Figure 3 shows the dynamics of the components of WGI. According to the reported data, it is possible to note rather low level of indicators within the territory of Ukraine, in comparison with the developed countries of the world.

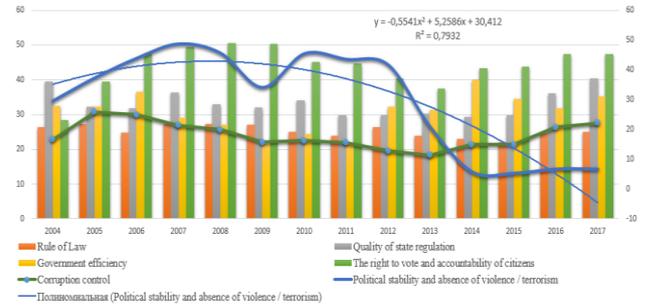


Fig. 3. Indicators of WGI components within Ukraine, percentage value among all countries of the world (from 0 (lowest) to 100 (highest) level) (WGI, 2019)

That is, Ukraine is characterized by a low level of management in the system of public administration, a high level of corruption, low efficiency of government decisions, non-compliance with current legislation in various spheres of life. There is a decline in political stability in the country, leading to conditions for violence / terrorism. At the same time, control over corruption is very low and not stable. Such results indicate systemic problems in public management, and, accordingly, the inability to create conditions for building national stability without deep reforms and qualitative changes in the system of public administration at all levels. The low level of transparency and accountability in the security and defense sector, in particular in the management of its assets and resources, in the defense industry and budget procurement, creates high risks associated with corrupt transactions and inefficient management. The outdated approach to the organization and implementation of territorial defense tasks leaves untapped opportunities to attract the potential capabilities of the reserve, local population and critical infrastructure to create national / state systems of security and resilience.

Thus, such results of the analytical assessment indicate the inability of the existing national security system to ensure the peaceful, secure development of Ukraine.

Based on the study, it can be argued that there is a direct dependence of the level of national security on the internal stability of the state.

4.2 Model and technology of forming an integral sector of national security and defense based on the principles of national resilience

The Law of Ukraine “On National Security of Ukraine” defines threats to the realization of national interests and preservation of national values of Ukraine (Law of Ukraine, 2018). An important task is to strengthen national capabilities in the field of cyber security, in particular to protect critical networks and infrastructure, maintaining an adequate level of resilience to risks and threats. The Procedure for organizing internal control and risk management in the system of the Ministry of Defense of Ukraine (Procedure, 2019) was approved, which is based on the concept of risk-oriented control of COSO. The essence of risk is to deviate from the planned course

of events under the influence of various factors. Risk (R_j) – is a category due to two components: the probability (possibility) of a dangerous event (P_j) and the consequences of this event (S_j):

$$R_j = P_j \cdot S_j \quad (1)$$

Risk is considered as a measure or as an event of loss. There are two possible risk measures:

- measure of the 1st kind, which assesses the possibility of a risky event;
- measure of the 2nd kind, indicating the immediate measured danger.

Risk – an event in the form of a chain: $A_i = L(g_{i_0}, g_{i_1}, g_{i_2}, \dots, g_{i_n})$ where g_{i_j} – the elements of the chain. The total risk of danger is the sum of the risks of the elements:

$$\mu_R \sum \beta = \sum_{i(\beta)} m_i(P) \quad (2)$$

where β – is the event number; P – is the probability distribution on which the partial risks m_i depend.

According to modern ideas, there can be no absolute security and there is always a residual risk. Therefore, the concept of “acceptable risk” is used, which provides an opportunity and selects scenarios of the required (desired) or acceptable level of security. Monitoring is conducted for risk management indicators. Indicators are defined for each region of the country.

National security is a complex system, the subsystems of which are a set of security indicators of the regions:

$$NS = \sum_{i=1}^k \{C_j^{RS}\} \quad j = \overline{1, g} \quad (3)$$

where NS – national security; C_j^{RS} – components of the socio-economic system of regional security; g – the number of components of regional security involved in the consideration and relevant areas of regional development (economy, environment, social sphere, personnel policy, innovation potential, etc.).

Each region of Ukraine has its own specific components that determine the level of regional security:

$$\{C_j^{RS}\} = \{Ekon, Ekolog, Soc, Inf, Tech, Mil, Enrg\}_4 \quad (4)$$

where *Ekon* – economic security; *Ekolog* – ecological safety; *Soc* – social security; *Inf* – informational security; *Tech* – technosphere security; *Mil* – military security; *Enrg* – energy security.

The measure of integrated assessment of national security is the matrix of regional security for all regions of the country. The regional security matrix has the form:

$$M_{RS} = \{m_{i,j}\}, \quad m_{i,j} = p_{i,j}, \quad i = \overline{1, g}, j = \overline{1, k}, \quad k = \max_i(k_i) \quad (5)$$

Where M_{RS} – the matrix of regional security for each region of the country; $p_{i,j}$ – j -th indicator of the i -th component of regional security; g – the number of regional security components, k_i and k – the number of indicators of the i -th component and the largest number of indicators in the row of the regional security matrix, respectively.

Analysis of the matrix of regional security allows to formalize the basic procedures for comparing different scenarios of socio-economic development of regions in given conditions. Each of the components of the system has a region of steady states $S = \{s_1, s_2, \dots, s_n\}$ and a matrix of transitions from one steady state to another (Bystrov et al., 2016). In this case, each of the steady states of the system is characterized by the values of some set of parameters $P = \{p_1, p_2, \dots, p_n\}$, where $\forall s_i \in S$, $p_i = \{p_{i1}, p_{i2}, \dots, p_{ik}\}$ – the values of the parameters of the i -th steady state, the values of which must be in a certain range, which may depend on the values of other parameters.

The dynamics of national security is a change in the sequence of stable security states of the country's regions:

$$\{S_k\}, \text{ de } S_k \in S, k = \overline{1, k_s} \quad (6)$$

where S – is the set of steady states of the system, k_s – is the number of steady states.

A transition matrix is used to determine the mechanisms of state change. Each element of the transition matrix reflects the possibility of transition from one stable state of the system to another. The condition of transformation is the “transition price”, ie the set of resources that are needed to change the security of the system. The matrix of the region’s security transition to the desired state has the form:

$$M(s_i, s_k) = \begin{bmatrix} 0 & \dots & p_{1k_s} \\ \vdots & \ddots & \vdots \\ p_{k_s 1} & \dots & 0 \end{bmatrix} \quad (7)$$

with $p_{ij} = f(c_{ij}, \Delta M_{RS}(i, j), T_{ij})$

where c_{ij} – the cost of resources to move from one security state to the desired, $\Delta M_{RS}(i, j)$ – parameter that reflects how the value of each indicator of the regional matrix will change security during the transition from the current to the new state, T_{ij} – the period of time required for the system to transition to the new state.

The formation of an integrated national security and defense sector is one of the most important goals of reforming Ukraine’s national security and defense system, which aims to build a stable nation and system of government. The need to integrate the principles of national sustainability, the need for inclusive activities in the field of governance, the fight against terrorism, corruption and organized crime requires a change in the concept of formation and further development of an integrated national security and defense sector. Based on

this approach, additional capabilities are formed to confront the full range of challenges and threats, effective deterrence and defense. A formalized model of an integrated national security system can be represented in the form of such a scheme (Figure 4).

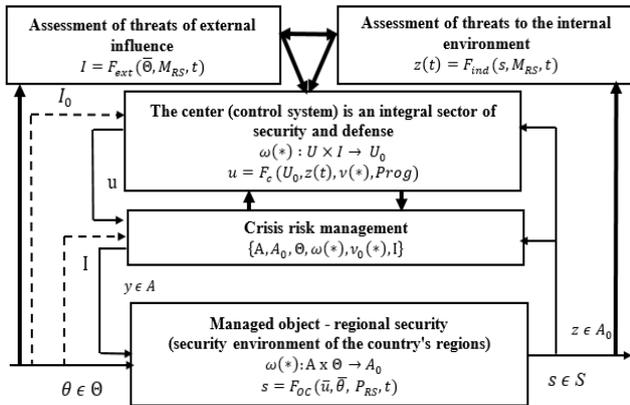


Fig. 4. National security scheme

The main goal is to form the ability of society and the state to withstand threats of various origins, quickly adapt to changes in the security environment and maintain sustainable functioning, as well as quickly recover from the crisis to the desired balance.

5. Conclusion

In this study the main aspects of the formation of an integrated sector of national security and defense based on the principles of national resilience are considered. The main components of national security and sustainable development of the country on the basis of global indices are considered, the main patterns and key problems of national security of Ukraine are highlighted. The study proved the direct dependence of the level of national security on the internal resilience of the state. It is established npriority for Ukraine areas of national stability: creation of a multilevel risk assessment system; improving strategic planning, analysis and crisis management; developing the resilience potential of local communities and regions. A formalized model of an integrated national security system is proposed, based on the principles of resilience of regional security parameters of all regions of Ukraine and a resource-oriented approach to the transition of the existing state of regional security to the desired state.

Risk management in the national security system based on a project approach - the direction of further research.

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