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USING A SYSTEM APPROACH TO ENSURE BORDER SECURITY

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ABSTRACT

If it is analyzing the border security from the point of view of national security is more extensive, but other side from the point of view of synergetic it will be requiring the participation of many researchers and professionals in this field, it is impossible to fully cover its content in one article.

Therefore, in this article, the basic concepts of national security and border security, such as "national security", "national borders", "national border inviolability", "national border security", and national border protection, are analyzed from the cognitive point of view with a systemic approach. The purpose of this research was to answer the questions that required answers. From this research the results of the analysis are evidenced by the conclusions and practical findings based on the principles of constitutionalism and the definitions given by professionals from the perspective of knowledge. The security environment has changed and efforts have been made to identify the main issues that require further research and clarification on border security.

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Introduction.

In his research work, O. Urjin, Ph.D. Professor says that "Currently, there are various formulations about the most general basic concept of security, and this has some negative consequences for the creation and implementation of the apparatus of the concept of national security.¹ The main reason is that among the people responsible for developing the problem, the cognitive understanding of security theory and methodology is not organized, and erroneous conclusions are made about the content.

When it comes to receiving understanding, the highest level, the most difficult to understand, and the most difficult form of cognition are categories or basic concepts. The main characteristics, inner nature, and hidden connections of any phenomenon or thing are reflected by this most general universal concept and scientific basis.

The scientific development of security studies is related to the solution of several philosophical-methodological and theoretical problems. It includes not only all types of self-security (economic, military, food, political, informational, educational, genealogical, etc.), but also the concept of security, which is an integrative phenomenon and event that is not limited to their sum and is not eliminated from them.

The most general basic concept of security studies is "security". ("Concept- a form of thinking that reflects the general features of the nature of objects, information, and thoughts;

content of the concept - a set of things with characteristics related to the content of the concept;

logical concept - an idea that sums up things and phenomena of a given class by their general and common characteristics;

¹ Urjin O. "Assessment of Mongolia's security environment-2030", UB.,

philosophical concepts - a way of thinking that reflects the main characteristics and relationships of things and phenomena;

the concept of language-vocabulary is the concept of human awakening related to life;

A concept is a general understanding and knowledge of a phenomenon.¹)

It is used in many processes and by nature, on the one hand, it contains special features that exist only in certain cases of security, and on the other hand, it conditions the possibility of using this concept in various fields and expresses three interrelated states. It includes:

1. Free from danger, i.e. absence of danger;
2. The protection from danger;
3. The conditions for development;

These are explained from the point of view of the definition provided by the philosophy of linguistics: on the one hand, "safe-no danger, no fear, no anxiety; "security-a state of being free from accidents and anxiety" refers to the absence of danger and guaranteed safety, while on the other hand, "security-no danger, completeness, reliability"² means the absence of danger, the state of being protected, and the conditions for development. It is expressed through a more expansive and intricate framework that encompasses the concepts of 'danger', 'protection', and 'development'.³ Therefore, it is necessary to consider the basic concept of "security studies" from a linguistic point of view, and to consider the content of its applied concepts from the perspective of phenomena, events, and results.

For the concept of national security, the first linguistic explanation concept discussed above is not enough. In real life, there have been, are, and will continue to be threats of various nature to national security. Therefore, the concept of "national security" should be considered as a complex and broad concept that contains three interrelated meanings of the second linguistic interpretation. In other words, the concept of "national security" is not absolute, but only a relative concept.

Therefore, from the point of view of the general theory of security, "security is a general concept of a peaceful work and life environment that is commonly used at the international, national, community, and even individual levels". It is possible to agree with this definition and believe that the level of national security is determined by how well these conditions are met.

Let's begin with a theoretical and methodological explanation of the content of the concept of the "national security" system and the system that provides it from the angle of scientific knowledge and system approach, and then, based on this.⁴ let's consider how the concepts are defined in the provisions of the national security concept.

National security is classified as internal and external security based on the location of the source of threats and the territorial boundaries between countries. Such a classification is very useful for the precise classification of any conceptual approach to solving the problem of national security, and the methods, forms, and ways of ensuring internal and external security are very different. In addition, internal and external security are mutually dependent and influence each other. Figure 1.1 illustrates the general structure of national security.

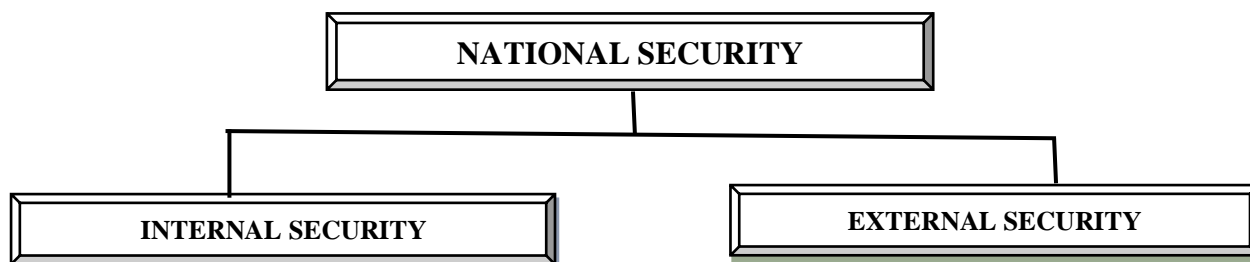


Figure 1.1. The classification of national security is based on the sources of threats⁵.

¹ "Detailed dictionary of the Mongolian language". T-X., SA., UB., 2008, 2650 p., s. 2269;

² "Detailed dictionary of the Mongolian language". T-X., SA., UB., 2008, 2650 p., s. 170;

³ "Concepts in Dahl's glossary". Here, "maintain integrity" is equated with the concept of sustainable development as security and reliability;

⁴ "Glossary of military terms", UB., Soyombo Printing, 2014. 702 p., s. 56. ISBN 978-99973-7021-1;

⁵ Palamdorj Sh. "On the theoretical and methodological issues of national security analysis. Theoretical and methodological analysis of Mongolia's security", UB., Soyombo Printing, 2019. 216 p., s. 57, ISBN:978-99978-68-08-4;

The following mathematical records can be used to represent national security, its system, and operational system based on this theoretical concept.¹

National Security System:

$$\Sigma S_{nc}: \{\{S_i\}, \{S_e\}\} \tag{1.1}$$

Here, ΣS_{nc} - National security system;

$\{S_i\}$ - Internal security system /subsystem of the national security system/;

$\{S_e\}$ - External security system /subsystem of the national security system/;

$\{\{S_i\}, \{S_e\}\}$ - a set of resulting states, considering both internal and external security systems and their interrelationships.

Operational system for ensuring national security:

$$\Sigma S_{nce}: F(\{\{X_{S_i}\}, \{X_e\}, \{X_{S_i,S_e}\}\}) \tag{1.2}$$

Here, ΣS_{nc} - system of ensuring national security;

$\{X_{S_i}\}$ - set of interrelationships of the elements that make up the internal security system;

$\{X_{S_e}\}$ - set of interdependence of the elements that make up the external security system;

$\{X_{S_i,S_e}\}$ - set of interrelationships between internal and external security systems;

$F(\{\{X_{S_i}\}, \{X_{S_e}\}, \{X_{S_i,S_e}\}\})$ - The result function of the set of activities that calculates the interdependence between the elements of the internal and external security systems of the national security system and between the two systems. From the mathematical expression of the national security system and its support system, it can be seen that the state of the national security system is defined as a function of the results of the system's support. In other words, the state of the national security system depends on the results of the operation of the system to ensure it.

The issue of ensuring national security and the role of border protection in it should be analyzed from the perspective of the systems approach, which is the main method of security research.

Therefore, based on the general mathematical record of the national security system, let's consider the methodology for determining the presence of border protection in this system.

The following methodology can be used to determine the role and participation of the border guard in the system of ensuring national security by protecting and strengthening the fundamental interests of the nation. This can be demonstrated by the expression below.

$$S_{nc}(S_{bp}) = S_{nc}(F(\{X_s\}), S_{bp}^+) - S_{nc}(F(\{X_s\}), S_{bp}^-) \tag{1.4}$$

Here, S_{bp} - the role of the border protection system in ensuring national security;

ΣS_{nc} - indicator of the national security system performance measured by the satisfaction of the fundamental national interests.

The result function $F(\{X_s\})$ of measures taken by taking into account the dependence of the component subsystems of the border protection system to ensure national security in order to ensure national fundamental interests is the participation of S_{bp} in the role of border protection (S_{bp}^+) and without participation (Assume that S_{bp}^-) can be implemented. When such a condition is met, it can be $\Sigma S_{nc} = S_{nc}(F(\{X_s\}), S_{bp}^+)$ or $\Sigma S_{nc} = S_{nc}(F(\{X_s\}), S_{bp}^-)$ In such cases, the performance indicator of the role of border protection in ensuring national security (S_{bp}) can be determined by the change of ΣS_{nc} .²

From the expression (1.4) - the percentage of border protection participation in ensuring national security (Q_{bp}) can be expressed by the following formula.

¹ Urjin O. "The issue of defining the term 'national security'", The security and defense studies, UB., 2018., v. 5., ISSN 2220-9115;

² Urjin O. "Methodology of systems approach to research and analysis for selection of performance indicators", The security and Defense Studies, UB., IRDS., 2014., p.143, s.55, ISBN:978-99978-848-9-3;

$$Q_{bp} = \frac{S_{nv}(F(\{X_s\}), S_{bp}^+) - S_{nc}(F(\{X_s\}), S_{bp}^-)}{S_{nc}(F(\{X_s\}), S_{bp}^+)} \quad (1.5)$$

Here, (Q_{bp}) - the percentage of border protection participation in ensuring national security.

Based on this definition of the general methodology, it is possible to determine the participation of border protection in the national security system by expressing its role.

The following correlations can be based on the participation and role of the border protection system in the national security system. It includes:

First, border security has the primary responsibility of ensuring the basic conditions for ensuring the security of existence and national security, which means that if national security is to be ensured, the probability of the verification of the basic conditions for ensuring the security of existence and national security should be 0.5 or more from the theory of probability. Take into account that the border protection system's role in ensuring national security ought to be $(S_{bp}) \geq 0.5$.

$$Q_{bp} = \frac{S_{nc}(F(\{X_s\}), S_{bp}^+) - S_{nc}(F(\{X_s\}), S_{bp}^-)}{S_{nc}(F(\{X_s\}), S_{bp}^+)} = \frac{0,7-0,5}{0,7} = 0,285 \text{ or } 28.5 \text{ percent.}$$

Secondly, the result of border protection activities is the cognition of the system for ensuring national security, that is, measures to ensure the role and participation of border protection in relation to $\{X_s\}$ of the system result function $F(\{X_s\})$ expressed by our expression (1.3). It depends on how it is calculated and it has a regularity that directly affects its results. For this purpose, by enforcing the principle of "comprehensive security policy" of national security, the border protection system should be the main and coordinating role, and the conditions for $F(\{X_s\}) \rightarrow S_{nc}(F(\{X_s\}), S_{bp}^+)$ can be created. In other words, the meaning of the result function of the national security system will tend to the performance indicators provided by the role of the border protection system of the national security system.

The interests of national security are related to the content of national borders and border protection, based on the basic concept of 'Mongolia's territorial integrity and frontiers are inviolable.' in the constitution. Based on the above, "the border protection system is defined as a unified complex of air, surface and underground border protection activities that are interconnected to ensure border security that is consistent with the goal of ensuring national security."

The lack of a systematic approach to the content of the term "national security" creates a significant gap in the process of ensuring its implementation. Let's consider an example that pertains to the issue of national border protection and border security.

The concept of the state border is defined as "Mongolia's border is the line defined and established by the international treaty of Mongolia on the land surface and water table separating the borders of the territory of Mongolia from the borders of neighboring countries. Above the line is the boundary of the air, and below the line is the subsurface boundary. that defines the nature of state borders and is legalized. Analyzing this definition from the perspective of the systems approach, it can be seen that the state border is a structural system consisting of three components and their interrelationships. Using mathematical notation to express this:

Border protection system:

$$\sum S_{bp} : \{ \{S_b\}, \{A_b\}, \{SS_b\} \}, \quad (1.6)$$

Here, $\sum S_{bp}$ - a marker indicating the state border protection system;

S_b - surface border protection subsystem;

A_b - subsystem of air border protection;

SC_b - underground border protection subsystem;

$\{ \{S_b\}, \{A_b\}, \{SS_b\} \}$ - a set of resulting states that calculate the relationship between surface, air and underground border protection subsystems.

Ensuring system for border protection:

$$\sum S_{bp} : F(\{ \{X_{S_b}\}, \{X_{A_b}\}, \{X_{SC_b}\}, \{X_{S_b, A_b, SS_b}\} \}), \quad (1.7)$$

Here, $\sum S_{bp}$ - Border protection system;

$\{X_{S_b}\}$ - set of interdependence of elements that make up the sub-system of surface border protection to ensure border protection;

$\{X_{A_b}\}$ - a set of the interdependence of the elements that make up the air border defense subsystem for border protection;

$\{X_{SS_b}\}$ - a set of interdependence of the elements that make up the underground border protection subsystem for border protection; $\{X_{S_b, A_b, SS_b}\}$ - the border security system's subsystems have interrelationships called. $F(\{\{X_{S_x}\}, \{X_{A_b}\}, \{X_{SC_b}\}, \{X_{S_b, A_b, SS_b}\}\})$ - The function of calculating the interdependence between the subsystems of the border security system and between the three subsystems. The picture of the state's border protection system is a following.

Therefore, national border protection is not only limited to the length of the borderline on the surface of the earth, but it is discussed within the area of the vertical plane extending directly straight up and straight down it, and *border security, which is an element of national security, will be ensured if the above three subsystems of border protection work properly.*

The subsystem of border protection, in its independence, is also a system consisting of subsystems. The elements within the subsystems are what this work refers to as subsystems.

$$S_{sb} = L_{S_b} * H_{sb} , \tag{1.8}$$

Here, S_{sb} - state border protection area, km²;

L_{S_b} - the length of the surface border, km;

L_{S_b} - height of border protection, km.

$$H_{sb} = h_{A_b} + g_{SS_d} , \tag{1.9}$$

h_{A_b} - height of air boundary, km;

g_{SS_d} - depth of subsoil boundary, km.

B. Dash-Yondon, who is a scientist, gave his opinion on the protection of the state border.¹

Nowadays, Mongolia exists within three borders.

a) The third boundary outside the traditional understanding is the subsurface boundary. Exploitation of underground natural resources or mining is what creates this unique boundary in our situation. The natural resources in this place are owned by our country and our people.

b) On the ground, there are boundaries of our territory.

c) The sky defines the boundaries of our airspace.

The last two explanations are in the sense of protection, the protective border of Mongolia. However, the underground silk border cannot be protected, because it is inevitable that the resources under the soil will be used in some way with the participation of foreigners. Within this concept of the state border, the territory is expressed as a spatial dimension with the following volume.

$$V_{T_s} = S_{TA} * H_{AS} \tag{1.10}$$

Here, V_{T_s} - Dimensions of the space to ensure territorial security, km³.

S_{TA} - Area of the territory, km².

$H_T = h_{A_h} + g_{S_d}$ - airspace height (h_{A_h}) and, subsoil depth (g_{S_d})

H_T - height of the territory, km.

When obtaining the height of the airspace and the depth of the subsoil: "National atmospheric space means the atmosphere above the land and water of the country. According to the Paris Convention of 1919, countries have the right to occupy their national atmospheric space as if it were their territory. The boundary of the national atmosphere is determined by a straight line drawn just above the boundary between land and water. International legal regulations and the extent of underground water and land resources should be considered when determining the upper limit of this space.

¹ Dash-Yondon B. "Mongolian development philosophy", /issues, methods, benefits/, UB., 2017, 190 p., s. 44;

The following conclusions can be drawn from the content of the definition confirmed by the Law on Borders and the analysis of the expressions and pictures showing its system. First, it is possible to determine the border line of the country and the bordering country only on the land surface. Second, when the boundary of the surface of the earth changes, there is a pattern of changes along the boundary of the air and the subsoil boundary.

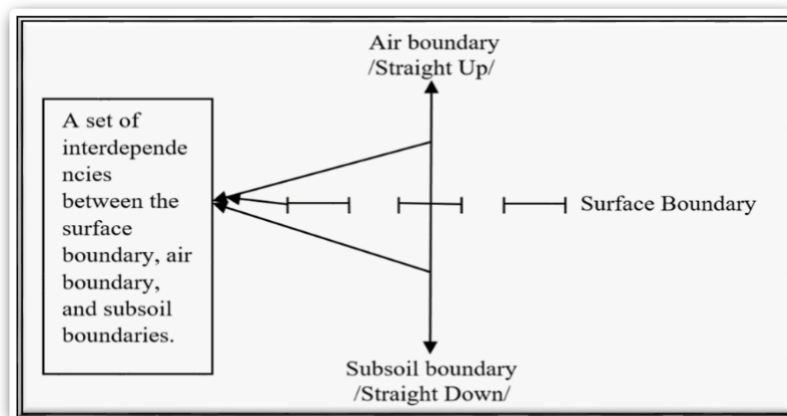


Figure 1.2 State border protection system.

In addition, a system is in place to address the issue of national border protection in the context of three interconnected environments: surface, air, and underground.

A systematic approach to national border protection would be more effective with a brief explanation of each of these three conclusions.

As for the first conclusion, the state border line (land surface border) is determined on the ground in cooperation with the bordering country as follows. It includes:

Firstly, a) by a straight line connecting certain landmarks and stable things on dry land, or by watersheds in mountains;

b) Along the straight line connecting the two ends of the state boundary line, in the middle of the mainstream of rivers, streams, streams, and lakes;

c) Cross-border facilities are determined by the state border line.

Secondly, an international border agreement is signed with the bordering country regarding the defined borderline, and it is ratified by the State Parliament.

Thirdly it follows under the international agreement signed by Mongolia with the bordering country, in cooperation with it, the work of determining the location of the state border line and border marks is carried out on the ground.

As for the second conclusion, if the border of the country is determined by the land surface borderline, and the interdependencies of air and subsoil borders are defined, steeply up and down, it shows that if the surface boundary line is re-establishing the air and underground borders will also change to the same extent.

As for the third conclusion. the main role of state border protection is the constitutional "integrity of the territory of Mongolia and the inviolability of the state borders" and the concept of national security is "the fundamental national interests of Mongolia ... Mongolia's law on borders includes the inviolability and integrity of its territory and borders, which includes the 'State borders are inviolable' clause.

The inviolability of the state border will be ensured in such a way that the state border will not be changed illegally, and the international treaty signed by Mongolia on border issues will not be violated. From the definition of "border inviolability" legally confirmed by the National Assembly, we can see two ways in which border inviolability can be lost cognitively. The first is an illegal change of state borders; the next is the violation of the international agreement signed by Mongolia on border issues.

Conclusion.

The following conclusions emerge from the study. It includes:

Firstly. The need for system analysis and interpretation of terms and their content is evident from the analysis of the legal regulation of state border protection and border security, starting with the concept of security.

Secondly. Changes and trends in the security environment are systematizing the state's border protection and border security activities. For example, the state border is a system consisting of three sub-systems: "land surface border", "air border" and "subsurface border", and its protection is an operational system consisting of the protection of these sub-systems.

Thirdly. The process of interdependence and globalization covers all spheres of society, the external and internal environment is changing very quickly, and the possibility of predicting the near future is becoming very vague, creating the necessary conditions to approach it with a systemic understanding and approach.

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