

CONCEPTUAL DEFINITION OF CRITICAL INFRASTRUCTURE SIGNIFICANT TO THE DEFENSE OF THE REPUBLIC OF SERBIA

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Abstract: *The defense of the Republic of Serbia as a function of national security consists of two segments: military and civil defense. Planning, organization and implementation of military and civil defense in peace, war and state of emergency is realized through the defense system. Defense planning identifies the forces, their capabilities, and the structure required to respond to a wide range of situations, usually expressed as a combination of concurrent planning scenarios and determinants derived from ministerial guidance. Infrastructure (critical infrastructure) is one of the indicators of the variables on which defense planning is based. In order to understand the correlation between the concepts of defense and critical infrastructure, research was carried out in the paper, the aim of which was to use several scientific methods, with an emphasis on the application of the content analysis method, to arrive at a conceptual definition of critical infrastructure of special importance for the defense of the Republic of Serbia.*

Key words: *Defense of the Republic of Serbia, Defense planning, Critical infrastructure*

1. INTRODUCTION

The bearer of defense planning, organization and execution is the defense system of the Republic of Serbia (part of the national security system), which is a unique, normatively, structurally and functionally regulated entity whose goal is to protect and realize the defense interests of the Republic of Serbia in peace, state of emergency and war (Koncept totalne odbrane, 2023, p.6).

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The process functions of defense system management are planning, organizing, leading and controlling, which are actually sub-processes of managing the efforts of all members of the organization and using the allocated resources to achieve the set goals of the organization (Kovacevic et al, 2018:264). Due to the scope of the problem, in the continuation of the work, the focus is on one of the procedural functions - defense planning.

Basic variables in defense planning are defense objectives, concepts and forces (Mismas, 2007:11). Defense goals and forces should be in a kind of equilibrium, because otherwise a "strategic gap" occurs, which is prevented through clear and precise elaboration in the concept. One of the indicator variables in defense planning is infrastructure. The specificity of infrastructure is also reflected in the fact that, in addition to its importance for the defense planning process, it is also one of the parameters for assessing the state of the defense system.

A special type of infrastructure is critical infrastructure, which is defined by the legislative solutions of the Republic of Serbia, and which are fully harmonized with the legislative solutions of the European Union. However, from the point of view of defense, the area of critical infrastructure is not regulated (or the solutions regulating this area are not publicly available). In order to understand the critical infrastructure in the context of defense, it was necessary to conduct research based on empirical analysis of documents of the normative-legal framework of the Republic of Serbia and strategic-doctrinal documents that regulate the field of defense. The goal of the research was to find an answer to the research question *"Does the existing normative-legal framework of the Republic of Serbia and strategic-doctrinal documents conceptually define critical infrastructure of importance for defense?"*. The research question is also the subject of research in the paper. The answer to the research question is obtained by the simultaneous application of several scientific methods with an emphasis on the application of the content analysis method.

The paper consists of two parts, where the first part is dedicated to defining the concepts of infrastructure (critical infrastructure) and defense in existing legislative and strategic-doctrinal documents, and their correlation. The second part presents the results of the research and provides a definition of critical infrastructure of importance for defense (within the term infrastructure).

2. INFRASTRUCTURE AND DEFENSE AS A FUNCTION OF STATE SECURITY

The term infrastructure is very complex and thus implies a lot of things, and it is used extremely frequently both in scientific research communication, political vocabulary, and in everyday communication. The term has been used in French since 1875, and in English since 1887. Originally, this term denoted: "Installations that form the basis for any operation or system" (Micovic, 2020:7).

From an etymological point of view, the term was created as a combination of the Latin words "infra" (meaning: under, below, lower) and "struere" (meaning: to arrange, to assemble). Consequently, in a general sense, the term infrastructure is translated as "a method of construction" or "foundation, base, basis". Depending on the context, the term itself causes different associations and interpretations, and its use is in line with the profession. However, the term infrastructure is impossible to determine more clearly and define independently of the term superstructure with which it forms a complete structure in space. For example, the modern urban superstructure consists of spatial objects that enable undisturbed living, work, recreation and other activities, while the infrastructure represents the material energy and information prerequisites for the functioning of the superstructure.

The use of the term infrastructure viewed from the aspect of defense was first used in the USA at the end of the 50s of the 20th century when the NATO alliance was formed, and since 1970 this term has become accepted in the civil (commercial) sector as well. It is important to emphasize here that the term infrastructure of importance for defense, i.e. for national security, began to be used massively in the early 90s of the 20th century, when this phrase was implemented in the legislation of many countries, as a separate part of infrastructure - "critical infrastructure".

Simultaneously with the introduction of critical infrastructure, the protection of critical infrastructures is also introduced into the legislation, which today represents one of the priorities of every state, primarily because they can be the target of terrorist attacks (Moteff et al. 2003, p.15). Immediately after the terrorist attacks of September 11, 2001, critical infrastructure became an essential part of national security, and its protection is one of the priorities of every state (Skero, Ateljevic, 2015:192). As a result of the above mentioned in the rest of the paper, the focus is on the consideration of critical infrastructure from the aspect of defense as a function of national security.

In the Republic of Serbia, the Law on Critical Infrastructure has been in force since 2018, which defines critical infrastructure as: "systems, networks, facilities or their parts, the interruption of functioning or interruption of the delivery of goods or services can have serious consequences on national security, health and people's lives, property, environment, citizens' safety, economic stability, i.e. endanger the functioning of the Republic of Serbia." (Zakon o kritičnoj infrastrukturi, 2018). It is important to point out here that the Law on Critical Infrastructure is in full compliance with the legislation of the European Union (Council Directive 2008/114/EC).

The function of defense in the national security system of the Republic of Serbia is defined by the positions in the legislative and strategic-doctrinal documents that regulate security as a function of the political system of the Republic of Serbia. The gist of these positions is presented in the Concept of Total Defense, where defense is defined as: "a function of the state that ensures the protection and realization of the defense interests of the Republic of Serbia" (Koncept totalne odbrane, 2023:3). It is important to emphasize here that the concept of defense, as a variable in defense planning, should answer the question of HOW to use available defense resources to achieve defense goals that represent the operationalization of defense interests based on values.

Defense implies the implementation of a wide range of joint, synchronized and hierarchically organized measures, complex procedures and the performance of activities of a combat and non-combat nature that protect and realize the national and defense interests of the Republic of Serbia. Defense includes military and civil defense, and is planned, organized and implemented in peace, emergency and war. Military and civil defense represent an integrated and synchronized response of entities and forces of the defense system to challenges and threats to national security (Koncept totalne odbrane, 2023:3).

If a parallel is drawn with everything mentioned above regarding critical infrastructure in the context of defense, it is clear that defense cannot be planned, organized and implemented in full capacity without adequate infrastructure, that is, adequately prepared (protected) critical infrastructure.

2.1. Research Method - Problem Approach

The research method used in the work is content analysis, with the fact that it was necessary to implement several other scientific methods (analysis and synthesis, definition and classification, and induction and deduction) in the research process. The goal of applying the

content analysis method is to determine the views from the subject of the research work, as well as to summarize the existing information on the subject of the research, while at the same time avoiding the implementation of the content analysis of legislative and strategic-doctrinal documents (in the further text of the documents) according to the expectations of the researcher (Rietjens, 2006, pp. 8-9). The research approach applied in the paper includes three phases: (1) research planning, (2) research implementation and (3) reporting on the results of document content analysis. In the continuation of the paper, the stages of the process of systematic literature analysis are elaborated.

2.2. Measurements and research procedures - Planning the content analysis of legislative and strategic-doctrinal documents

In order to realize the planning of document content analysis, a research protocol was defined, which contains the following elements: research objective; the research question that will be answered by analyzing the content of the documents; criteria for selecting documents, which include defining criteria for including or excluding documents from the analysis – defining the document base; defining terms for content analysis of selected documents; data extraction and synthesis of extracted data (Drobysz & Sherman, 2020, p. 385).

The goal of the research is to analyze the content of existing documents related to critical infrastructure as a defense resource, in order to determine whether critical infrastructure of importance for defense is defined in them.

Defining the criteria for including or excluding documents from the analysis – defining the document base refers to defining the search term and determining the search source, that is, electronic databases, in order to include only that material that is relevant to the research question. The key terms used for the search are the following: "defense/military defense/civil defense" and "critical infrastructure". The electronic services of the National Assembly of the Republic of Serbia, the Government of the Republic of Serbia, the Ministry of Internal Affairs, the Official Gazette of the Republic of Serbia, the Consortium of Serbian Libraries for Unified Procurement and the Ministry of Defense of the Republic of Serbia/Official Military Gazette were used for a systematic literature review. All documents whose content is available on the mentioned services are included in the search. Then, the criteria for inclusion, that is, the criteria for excluding documents from the preliminarily defined document base, were defined.

Inclusion criteria: material that meets the defined search keywords in its content and the material search is limited by the time dimension from January 1, 2018 to May 1, 2024. Exclusion criteria: material that is not available in full version for reading and material that has defense/military defense/civil defense as its focus, but without defining critical infrastructure as a resource constraint. By applying the criteria for inclusion and exclusion of documents, a secondary database of documents was generated. When defining the mentioned criteria, the goal is to find out whether there is a connection between the terms "defense/military defense/civil defense" and "critical infrastructure", so based on the previous reading of the documents, the terms "resources" or "facilities" and "critical infrastructure", "infrastructure of importance" which have also become terms for analyzing the content of the secondary database. Also, the determinant of defining the criteria was the actuality of the analyzed documents.

The process of data extraction involved multiple reading of relevant documents and identification of information that is essential for answering the research question. The synthesis of the extracted data involved collecting, linking, comparing and summarizing the results of the included content from the secondary defined document base.

2.3. Results - Conducting content analysis of legislative and strategic-doctrinal documents

The first step in the phase of document content analysis is the search for material according to defined keywords in electronic databases. The total number of documents for all available electronic databases based on the defined search keywords was 31. After the potentially relevant material was collected, its relevance was assessed, based on the application of criteria for including and excluding material from further analysis. By applying the defined criteria for inclusion in the analysis, the total number of documents was 18, while after applying the exclusion criteria, 5 documents remained from that number. In order to facilitate the implementation of the content analysis process, a special instrument was constructed - a content analysis sheet, which is shown in Table 1.

Table 1: Content analysis sheet

Research Question	Data Sources	Units of Content Analysis				Total units of content analysis
		defense/military defense/civil defense	critical infrastructure	resources/facilities	infrastructure of importance	
Does the existing normative-legal framework of the Republic of Serbia and strategic-doctrinal documents conceptually define critical infrastructure of importance for defense?	laws and regulations	+	+	+	+	8
	strategies and doctrines	+	+	+	+	14
	regulations	+	+	+	+	5
	assessments and guidance	+	+	+	+	4

According to the above, a secondary database of documents was formed, which can be divided into four parts according to the way the documents were created, that is, according to the holders of the documents that make up the database: (1) laws and regulations; (2) strategies and doctrines; (3) regulations of the Government of the Republic of Serbia; and (4) assessments and guidance. Further analysis of the content of the secondary database of documents was carried out through data extraction, that is, through multiple reading of the documents of the secondary database and identification of information about the documents that provide an answer to the research question. After the process of extracting data using the methods of analysis and synthesis, definition and classification and induction and deduction, a synthesis of the extracted information was carried out and the results of the research were arrived at, that is, the answer to the research question.

2.4. Discussion - Reporting on the results of the content analysis of legislative and strategic-doctrinal documents

The answer to the research question, that is, the elaboration of the obtained results constitutes the third phase of content analysis. The research resulted in results that unequivocally show that in the Republic of Serbia, the normative-legal framework recognizes critical infrastructure as a resource, that is, a resource limitation of defense. Specifically, the following are clearly and precisely defined: 1) defense resources; 2) critical infrastructure (infrastructure segments) is recognized as a defense resource limitation; and 3) organization (purpose, subjects, scope of work and responsibilities) of critical infrastructure protection.

At the same time, the research led to results that show deficiencies in the analyzed documents. First, there is no single interpretation of critical infrastructure as a term in military and civil defense. From the aspect of military defense, infrastructure is unequivocally recognized as an element for assessing the situation and as a constituent of the army's operational capabilities, on the basis of which the capabilities of the army (as a whole or its parts) arise for the execution of missions and tasks (operational and functional capabilities). "The protection, preservation, use, control and supervision of critical infrastructure under the jurisdiction of the Ministry of Defense and the Serbian Armed Forces is carried out in accordance with the Law on Defense and the Law on the Serbian Armed Forces" (Zakon o kritičnoj infrastrukturi, 2018: član 7. stav 6). However, there is no critical infrastructure as a term, but the term infrastructure is exclusively used (although from the documents it can be concluded what type of infrastructure it is) which is implemented in the term "preparations and arrangement of the territory" as a segment of the preparations of the Serbian Armed Forces (Doktrina Vojske Srbije, 2010, p.49).

When it comes to civil defense, the legislative solutions boil down to the fact that civil defense prepares the territory and all available resources for the needs of military defense, that is, there is no clear indication of what these resources are, that is, how their protection is carried out. Here it is important to emphasize that there are no provisions in the existing legislation that precisely define the management of the civil defense system. The absence of precisely defined governing bodies increases the level of endangerment of the civilian population and material resources (primarily infrastructure), because there is no legislative responsibility for their protection (Mladenovic & Komazec, 2022, p.37).

Secondly, there is no definition of infrastructure, that is, critical infrastructure, as well as which sectors would be of particular importance for defense, and in which critical infrastructure would be identified. In Article 6, paragraph 1 of the Law on Critical Infrastructure, the infrastructure sectors in which critical infrastructure should be identified are given. With the same legal decision, the legislator enabled the competent ministries to designate other sectors in accordance with their needs, as well as to update the review of critical infrastructure no later than December 31 of the current year (Zakon o kritičnoj infrastrukturi, 2018).

Based on the conducted research, it was not possible to determine whether criteria for identification in infrastructure sectors were developed at the level of the Ministry of Defense that would clearly and precisely define critical infrastructure of special importance for defense. However, in this context, the closest solutions are given in the Law on Defense in Article 67. "facilities where items are produced, stored or stored or services provided for defense purposes, facilities where state bodies and legal entities of special importance for the defense of the country are located, as well as certain infrastructure facilities. Objects or parts of objects from paragraph 1 of this article, as well as measures for their protection, are determined by the Government in a special regulation, on the proposal of the Ministry of Defense." and Article 105, paragraph 1. "The following are considered immovable things for special purposes: land, buildings, underground and above-ground objects with accompanying infrastructure, which

are used by the Ministry of Defense and the Serbian Army Forces for military purposes, as well as other immovable things located in the military area." (Zakon o odbrani, 2018).

Based on the above, it can be concluded that critical infrastructure of special importance for defense is a complex concept that can be defined in a broader and narrower sense. In a broader sense, *critical infrastructures of importance for defense can be treated as a term that includes appropriate national capacities, services and information systems of vital importance, whose inability to operate or damage could have a direct impact on the efficient functioning of the defense system of the Republic of Serbia, and consequently on national security, that is, the constituents of the Republic of Serbia as a state.*

In a narrower sense, *critical infrastructures of importance for defense include: the functioning of entities and forces of the defense system, energy, transport, water and food supply, health, banking and finance, telecommunications and information technologies, dedicated industry, chemical plants, environmental protection and protection cultural values.*

Thirdly, during the research, findings were also obtained that primarily affect the protection, preservation, use and preparation of critical infrastructure of importance for defense, and they concern ownership. In particular, critical infrastructure of importance for defense is owned by: the state, municipalities, private persons, persons for state-owned property management, property owned by legal entities whose founders are local self-governments. This de facto means that critical infrastructure of special importance for defense is in public, private or public-private ownership. The above is very important from the perspective of the obligations of the owners of the infrastructure regarding the implementation of measures for its protection, storage, use and preparation for the needs of defense, as well as control and supervision by authorized persons from the Ministry of Defense.

3. CONCLUSION

Infrastructure, and especially that segment that is identified as critical, is one of the factors for the development of the capabilities of the defense system. The aforementioned becomes very important, if viewed in the assumption of acceleration of changes in the security environment, especially after the beginning of the Russian-Ukrainian conflict, because the area of functioning of critical infrastructure comes to the fore when critical infrastructure and its individual elements are simultaneously exposed to the destructive forces of certain dangers.

Based on the knowledge obtained in the preparation of this work, it can be concluded that the issue of critical infrastructure is a novelty in the rhetorical sense, and consequently, there is a small number of theoretical (academic) works in this area. However, it cannot be said that nothing has been done in the Republic of Serbia, especially from a legislative point of view, regarding critical infrastructure. The biggest progress was made in terms of harmonizing the national legislation with the European Union legislation and in terms of defining the purpose, organization, scope of work, responsibilities and preparation of critical infrastructure protection plans.

The specificity of documents, regardless of the group they belong to, is primarily reflected in their short-term nature, i.e. the necessity of redefinition and harmonization with practical experience, security trends in the environment of the Republic of Serbia and international legislation. For example, in the European Union in 2021, a new set of legislative documents related to the protection and risk management of the safety of critical infrastructure was adopted. Also, the security trends in the environment changed a lot after February 24, 2022, i.e. the beginning of the Russian-Ukrainian conflict.

The focus of the work was on looking at the critical infrastructure of importance for defense, and certain shortcomings were observed there. There are no provisions (positions) that define critical infrastructure of importance for defense, as well as sectors in which it could be identified. Based on the conducted research, the paper provides a definition of critical infrastructure of importance for defense in the narrower and broader sense of the word, and at the same time a proposal of sectors in which critical infrastructure could be identified is defined.

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