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CRITICAL INFRASTRUCTURES AND THEIR IMPORTANCE IN MODERN SOCIETIES – PROTECTION, SAFETY, SECURITY

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Abstract: *Nowadays, the modern security environment has it foundation based on some vital pilons, that are also important for the normal functionality of the modern society. This paper will offer a new perspective on critical infrastructure protection, defining the relationships that take place freely in a modern society. The international security could be analyzed from functional (systemic) and structural points of view. From the systemic point of view, the global security is characterized by five major systems: political, economic, social (socio-demographic), cultural and ecological. From the structural point of view, besides the above systems there are other ones: military, intelligence, communications and infrastructure (the critical infrastructure, health, financial, culture, education and research). There are certain infrastructures such as: telecommunications, transports, systems of power or water supply, IT systems, diverse systems and emergency services, that are actually fundamental to a prosperous economy and therefore critical to the development of human society. Telecommunications, power systems and transport infrastructures are essential infrastructures that ensure not only the mobility, but also the adequate performance of the armed forces, which is one more reason for which these infrastructures are critical. The degree of development and resilience of national and European critical infrastructures is essential for the economic growth and for ensuring the security and welfare of society on the whole. Therefore, the modern national security, seen as a system or a structure, has been passing through a reform and modernization process in order to adapt to the challenges of the 21st Century and the requirements triggered by North Atlantic Treaty Organization and European Union memberships, and not only. In this context there is a need for some security politics and strategy which could increase the national security condition.*

Keywords: *critical infrastructure; protection; interdependence; relationships; modern security environment; modern society; the welfare of society.*

Introduction

Starting from the premise stated by General Eisenhower, American leader and president, according to which "there is always the possibility of a war", I analyze in detail and apply a series of features of critical infrastructure, detailed on the interdependence and protection of critical infrastructure in the environment of the security in our modern society.

Interdependence can be understood as a two-way relationship between two critical infrastructures, the state of one influencing the others, while dependence is a one-way relationship. "Determining interdependencies is conditioned both by the identification of vital processes and essential components that interact within a sector, and by the establishment of nodes and links between sectors that lead to the development of life as we know it. The highlighting of these relationships can be done by matrix or graphic methods, by quantifying the identified interdependencies"[1] in the functioning of modern societies.

In peacetime, the challenge of the military forces is represented by "the correct intuition, how well the ideas and new technologies will be applied and function in the battlefield, the place where, in fact, the true and strict education on the conduct of war is realized"[2]. The purpose of an army, as an element of state/power, is to prepare in a way as close as possible to a certain reality, by faithfully imitating the spectrum of threats of the moment, of the hypothetical adversary which

[1] *Critical infrastructure protection - a challenge for national security*; available online https://www.academia.edu/14603798/Protec%C5%A3ia_infrastructurilor_critice_O_provocare_pentru_securitatea_na%C5%A3ional%C4%83, accessed on December 15, 2020

[2] Scientific research report no. 1, lieutenant colonel doctorand Cesar Cucoș, *Contemporary operational environment - determining factor in creating a hypothetical opponent*, 2015, Bucharest, p. 7.

it could face in a possible conflict, of any nature, so that the saying „*train yourself as you fight*" to remain a central element of the approach in this regard.

Looking from a military perspective, the problem of critical infrastructures protection has grown with the main reason of increasing the number of designated critical infrastructure at the level of a society, state, individual. Therefore, the subject of critical infrastructures has become more and more topical, due to the increasing complexity of economic and social life correlated with the hazards that have led to an increased diversification for critical infrastructures in modern society.

Critical infrastructures in modern society

A more pragmatic definition is proposed in the paper, published by the Center for Excellence in Cyber Defense in Tallinn, which states that critical infrastructures are those "entities and infrastructures that process, store and exchange information necessary to provide services crucial to the existence of a nations and for the welfare of society "[3]. I noted the technical and restrictive nature of the definition, which reduces the notion of critical infrastructure to "systems containing electronic computing"[4] related to ensuring the well-being of society leading the analysis to systems such as health, education, finance, energy, food/public alimentation, transport, research, IT and communications (internet), security and defense, and also space. Thus, the "need for personalized consumption" influences the satisfaction of individual needs related gradually and simultaneously to geographical location, nature of primary resources, population, economic potential, military power, ability to promote social policies and achieve infrastructure protection, as well as information management. These activities formulate and describe a diagram of the operation of the society engine. Basically, they can be assimilated as parameters for monitoring its operation. Thus, I believe that the crisis situation occurs when the conditions that describe the state of normal have been affected and there are no sudden solutions to adjust the imbalance or imbalances. The crisis is more or less acute as the impact of the imbalance is of a lower or higher density on the analyzed unit (social, political, economic, IT, military, infrastructure, information, health, finance, transport, energy, water, education, safety and security). You can imagine how our daily actions have effects on six or more domains, interacting freely, and every disruption affects all the above domains, which is called the cascade effect.

At local, regional, international and global levels, there are a multitude of actors with an important role in the normal operation of the society engine. One of the most important aspects related to the daily management when it comes to the quality and comfort of life refer to control and maintaining measures of the critical parameters. When, for some reason, the conditions of quality and comfort are gradually affected on a scale of values, disturbances can range from the simplest (such as: a temporary interruption of electricity supply due to a blizzard), to the most serious (such as: migration of a population from one area to another as a result of affecting the natural climate or causing a military conflict).

As stated before, COVID-19 pandemic, a global topic related to various regional issues, such as: regular disruption or damage to the crucial commodities, weather threats - low temperatures, snow, wind, rain, floods - makes modern society vulnerable due to external factors (the lack of jobs), the sudden change in the functioning of the society determines the governments to take into account the social resilience of the individuals who live under the same umbrella called society/state/community.

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[3] Colonel Professor doctor engineer Cesar Vasilescu, *Current challenges of critical infrastructure protection*, 2018, Bulletin of the „Carol I" National Defense University, Bucharest, p. 39.

[4] B. Blumbergs, *Technical analysis of advanced threat tactics targeting, Critical Information Infrastructure*, Tallinn, NATO CCD CoE.

In the literature we can observe the emphasis of researchers on the dimensions of critical infrastructures, especially on their non-military dimensions. Consequently, dimensions of critical infrastructures can be identified in terms of military, political, economic, social, cultural, ecological, educational, medical, national defense and safety, security and IT, communications, etc. Next, I am going to analyze the dimensions of critical infrastructures, revealing the most important risks and hazards to the components that make up and relate within the area of interest subject of analysis.

Therefore, *the military component* refers „to the mutual influence between the offensive and defensive military capabilities of states and their perceptions of the intentions"[5] of a hypothetical adversary. For a long time, this has been certainly considered important, being so even today, due to the emergence of new hazards and threats related to the intensification of vulnerabilities. The states face military threats, such as: weapons of mass destruction, conflicts in the Middle East, organized crime, nuclear weapons, military disputes, pollution and the environment. All issues show us that military power continues to have a special significance. The contemporary conflicts in France, United States, Holland based on social motives as discrimination, humanity, equality, culture and racism give us a clear idea of that. The most difficult issue in the military field is terrorism.

The political element of critical infrastructures considers „both the relationship between the state and its citizens, and the international relations of the respective state". Therefore, the issue from a political point of view can be studied dually, positively and negatively, a government also under the influence of external relations on international security and international law. Following studies on social organizations, human communities have found that they have faced an existential environment. I emphasize that *insecurity status* is the most complex of the threats that have affected human communities. In their historical development, states have become aware of the indispensable need to ensure security, in the context in which wars were the main threat to sovereignty. The objective of this dispute is very important because the loss of a war could create favorable conditions for the surrender of some territories, and consequently, the moving of borders. National identity could be discredited; the foreign political domination as a result of the loss of sovereignty determines the decrease of the legitimacy of the state institutions, a fact that can generate social disturbance.

The 21st century represents the peak in formulating the issue of critical infrastructure protection in a multidimensional and characteristic aspect: dynamics, threats, mutations, functions, currents, schools, ideational confrontations and modernization tendencies. The political dimension of critical infrastructures has emerged through the presence of international organizations based on the fundamental need for cooperation. International political cooperation is a representative element for the security in a modern society, given that the superpowers should accept the broad umbrella of a collective protectorate. At the political level, international organizations can determine the security priorities of Member States that need to align their national interests with international ones.

The security of a modern society is conditioned by the international operational environment and the internal security environment, these two being in a systemic relationship. The international operational environment is supported by the ways in which states promote their foreign policy, and the domestic environment is identified by the relationship that the state develops with its citizens.

The relationship of North Atlantic Alliance with the European Union on the military side is a privileged one, based on the desire of the European Union to achieve the performance

[5] Teodor Frunzeti, *Globalization of security*, 2006, Polemos Publishing House, Bucharest, p. 102.

level of the North Atlantic Alliance. The relationship with the North American states cannot be ignored, in the context of the emergence of new types of threats. The two alliances, the North Atlantic and the European Union are united with the categories of losses generated by the materialization of such threats because they have a common enemy - terrorism - which attacks spontaneously and unconventionally.

The social component of critical infrastructures „involves the protection of collective identity, national specificity and national cohesion". Among the problems in the social field I can mention: migration, degradation of the educational environment and poverty.

The society can realize a complete, complex and comprehensive approach on the phenomena manifested at the social level, within the contemporary/modern society. Each type of society, in a certain period of time, has its particularities, which individualize it quantitatively or qualitatively compared to those that will succeed it in evolution. In fact, human society is the one that stays in all social constructions and structures, its successful creation being the state. In relation to society, the state has become an instrument that administers and governs it, being a formula for legal existence.

Although they have evolved at the same time, the states went in different directions, determined by the geographical position, by the political leaders, by the economic development, by the interests of some influential states. A particularity for modern society is the democratic state, "which offers the best solutions for: individual development and evolution; preservation and functioning of its institutions; recognition as a subject of international law; adopting protective social policies in line with the ideals of citizens"[6] it can ensure the climate of national security, while contributing to maintaining the international one in good relations and development.

Modern security described in a contemporary context has multiple meanings that are interspersed, revolving around the individual – as a member of society - aimed at ensuring fundamental rights and freedom, in order to establish positive social policies that preserve the elements of national identity. In democratic states, the citizen is recognized as a social value, and the premises for achieving the security of national critical infrastructures start from his/her role in society. In countries with totalitarian regimes, the citizen - unable to be in a normal relationship with the state – is vulnerable, the security function being vitiated and misappropriated for purposes related to the survival of the political regime and leaders. A modern society refers from a social point of view to evolutionary trends, generated by personal needs and assumed by the political factor. This factor is due to the implementation of positive social policies that ensure the existential balance at individual and group levels, thus revealing the relationship of interdependence that is created in the modern operational environment.

The interdependence of critical infrastructures in modern society - critical variables and dimensions of the security environment of modern critical infrastructures

Implementing the protection of critical infrastructures in the contemporary/modern operational environment by training military forces aims to create an objective force capable of "adapting quickly and optimizing its capabilities to meet mission objectives, to fight and win in a complex and evolutionary environment"[7].

[6] Available online https://studiidesecuritate.files.wordpress.com/2012/02/aspecte-ale-securitc483c5a3ii-moderne.doc, accessed on January 8, 2021.

[7] Available online https://www.globalsecurity.org/military/library/report/call/call_02-8_ch1.htm, accessed on January 8, 2021.

The force that generates the "power" of a state is composed of a multitude of elements, but its basic components are focused on the strategic position and geographical extent, population size, economic resources, level of industrial production, etc. These elements are complemented by administrative efficiency and financial power, with educational and technological possibilities, research, and all together are governed by a moral cohesion, which in certain situations, is asserted in terms of nationalism.

Some constant features that define the nature of modern operational environment are:

"a) the quality of member state within the international military bodies and alliances with a role in common security and defense;

b) the military intervention of a state for the defense of its national interests will be integrated in a complex of political, diplomatic, economic, informational and other actions;

c) states will continue to structure, train and maintain their armed forces able of acting in the national interest;

d) states will continue their process of modernizing their forces, even in the context of constraints generated by their own national economies or global crises;

e) the advanced technologies will be presented to the international market and will be, in the conditions of a free market economy, available to anyone who is able to acquire them, whether it is a state or a non-state actor;

f) non-state actors will be more present and will have an important role in regional conflicts;

g) a number of variables will significantly affect the combat actions and the development of military operations"[8]. Thus, one of the constants is determined by the existence of a number of critical variables that determine the existence and nature of the modern operational environment, defining variables in certain circumstances and scenarios. It can be seen that the modern operational environment „reveals the interdependence of critical infrastructures, identifying with the present and referring to the near future".[9]

There are a series of critical variables, presented in Figure no. 1, linked with the dimensions of the operational environment facilitating the understanding of the threats that define it. These variables are interdependent and, depending on the situation, the importance of some decreases or increases in relation to others. American experts believe that the eleven variables that could characterize and define the operational environment, as generic, contemporary and modern, and actually create a specific operational environment are the following:

a) the nature and stability of the state/states in the analyzed region;

b) the international and regional relationships that exist among the respective states, as well as among them and other global countries or bodies;

c) the economic environment;

d) the physical environment;

e) technological development;

f) demographic elements and social situation;

g) media and information environment;

h) the international organizations involved;

i) the will of the nation or nations concerned;

j) time;

k) military capabilities.

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[8] Scientific research report no. 1, lieutenant colonel doctorand Cesar Cucoș, *Contemporary operational environment – determining factor in creating a hypothetical opponent*, Bucharest, 2015, p. 55.

[9] *Ibidem*, p. 56.

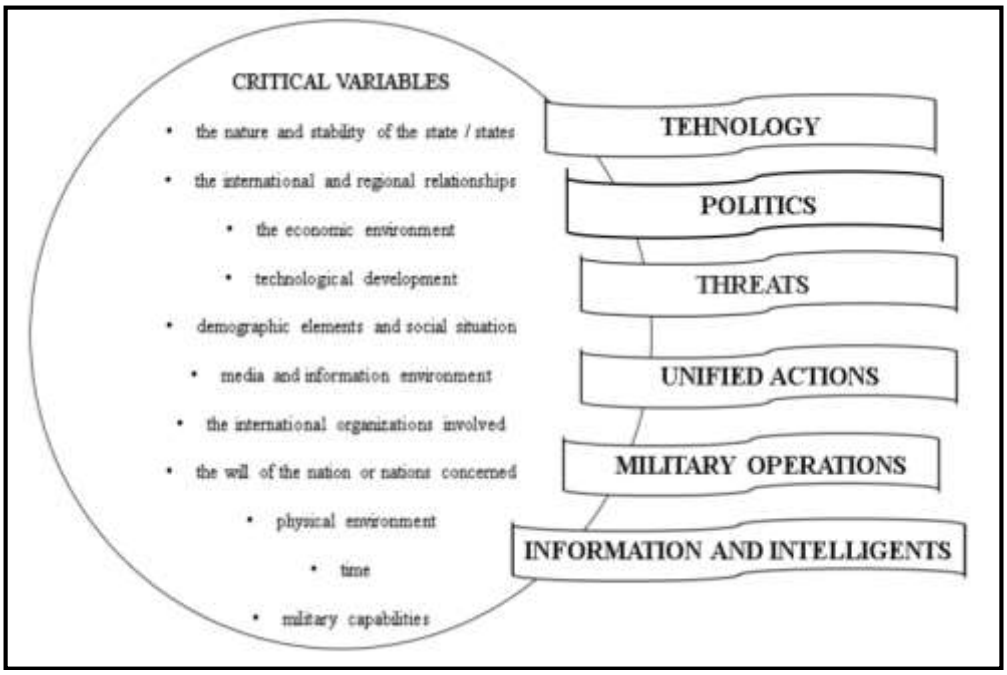

Figure no. 1: Variant for critical variables and dimensions of the security environment of modern critical infrastructures[10]

Source: reference no. 11

Only by understanding these variables, by including and taking them into account during the force training process (the process of creating scenarios), can the two important effects be obtained: removing the hypothetical opponent from the possibility of obtaining an operational advantage and using these variables in own advantage, necessary for victory.

The nature and stability of the state is the variable that determines the typology of existing threats and allows the understanding of the real purpose and nature of a campaign, operations or actions, as well as those carried out by a hypothetical opponent. It is well known that the stability or fragility of a state is closely linked to a wide range of social issues and exact sciences (statistics), such as analysis of political mobilization, institutional development, social unrest, civil war, economic and financial performance, social cohesion, ethnic violence and a number of issues closely related to pressure on the state or the types of threats to its stability and integrity.

International and regional relations are those that are established at a given time among various actors, whether states or not. These partnerships are created on the basis of common interests or may support some common goals, such as political, economic, military, cultural or climate change.

Economy is the variable that makes the difference between having and not having things. In recent decades, it has been concluded that the study of economics must be conducted from a historical perspective of the world, giving greater importance to the economic factor in politics and history. Economic superiority can represent power and the path to dominate a region, rather than military superiority at some point. The economic development or the economic support received gives a state or non-state actor the possibility to procure weapons and prepare aggressions, allows the acquisition of technology, etc. The level of economic development contributes to establishing the type of relationship among states and other actors, based, in general, on interests of different orders.

[10] Adaptation according to lieutenant colonel drd. Cesar Cucoş, Scientific research report no. 1, 2015, *Contemporary operational environment – determining factor in creating a hypothetical adversary*, Bucharest, p. 123.

The demographic variable includes ethnic, religious or cultural determinations. There is a natural connection between the demographic factor and the armed power between the party and the whole. The demographic factor is responsible for the emergence, development and prolongation of conflicts over time.

Between the economic and the demographic variable there is a relationship of mutual dependence, exercised over a long period of time. Inequitable distribution of resources around the globe, poor governance in some states, labor migration, demographic decline and social polarization, impoverishment of the population and others inevitably lead to mass discontent, extremist actions, the accentuation of the phenomenon of mass migration to a better life, drug traffic, people traffic and organized crime.

Media coverage today is one of the critical variables with immediate effects even at the political or strategic level, through the actions of various actors on the control and manipulation of public perception. Permanent access to the Internet and television currently makes international public opinion perceive states of crisis or conflict in their media image. The media can induce panic by generating vulnerabilities to misinformation, influence, manipulation among public opinion or its attitudes, completely broken by reality, can change the correspondence between the war and its media image, between „real and filmed war"[11].

The physical environment, as a variable of the modern operational environment, is represented by the terrain and the weather. A hypothetical adversary will try to avoid open spaces and will choose to act in complex terrain, in urban and densely populated areas, in weather conditions that affect its opposing forces and that diminish their possible technological advantage.

Technology is the variable of the modern operational environment that best describes the economic development that a certain actor has and the economic support that he has at a given time. This technological component can represent what actors produce, develop, import or receive as support (for example: the case of the infusion of technology, equipment, military technology with which the United States supports the Afghan Army). Technology will continue to be a promoter of threats and opportunities.

International organizations have become increasingly present in the field operational environment, and their power and influence continue to grow in proportion to the exclusive domain of classical military action. The objectives and interests of these institutions can be declared or hidden, and in the operational environment, their actions can support or hinder the conduct of military operations by their own armed forces.

The will of the nation is the variable that reflects the support that the population and the government of a state give or not to the action carried out by the military or paramilitary forces.

Time, as a variable of the modern operational environment, plays a decisive role in the preparation and development of actions and operations. Adverse forces will consider time to their advantage. They will try to use surprise, increase the pace of operations, win quickly, before their troops deploy and fully deploy their forces and fighting techniques.

The military capabilities of a state or non-state actor can represent the most complex and critical variables that would influence the conduct of military operations. These can be measured by comparison with those of the opposing forces and are defined as the ability to provide a certain operational effect in a nominated environment and to sustain it in a given period of time. In today's modern operational environment, the armed forces operate in a conventional manner, but may also have asymmetrical or adaptive approaches. As with the others, this variable is not an isolated one, but coexists and interacts with the others.

Nevertheless, the modern operational environment is represented by the full spectrum of circumstances, influences and conditions that military forces must face during military operations to safeguard the national interests of the country and its allies.

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[11] Alvin and Heidi Toffler, *War and Anti-War*, Survival at the Dawn of the 21st Century, Antet Publishing House, Bucharest, 1995, p. 205.

Regarding the extended operational environment, I consider that at the beginning of the 21st century, the intensification of global military competition and the accentuated expansion of European networks of military power led to the compression of the globe in a single operational space. Nowadays, the operational environment has acquired a vast geographical extension, proving that the confrontation no longer took place at the level of military forces, on the small battlefield, but also at the level of other variables and constants that fulfill vital functions in the functioning of modern society.

In the context I am referring to, I can say that by confronting the world with the threats of terrorism, with the antagonisms in the Muslim world and with the suspicions regarding the reasons for military interventions, they have the largest share of threats as part of the operational security environment, e. g.: a potential conflict has existed since before World War II, but it has been silenced due to United States policy of involvement and the concern of the U.R.S.S. for its internal problems, which brings to the fore the fact that Europe continues to be the main arena of political and military disputes.

In today's world, the tendency of some great actors of the international scene to exercise their power in a zonal, regional or global plan is manifested, perhaps more strongly than ever, and, on the other hand, the marked power games, the efforts of small and medium-sized countries to step out of the sphere of influence of some states and to enter other spheres of influence, where they can fully defend and promote their own interests - national interests.

New threats, such as „terrorism, proliferation of weapons of mass destruction, unresolved conflicts, authoritarian regimes, failed states, uncontrolled migration, crime, along with the appearance of new conflicts such as ethnic disputes, guerrilla warfare or other low-intensity conflicts”[12] have caused changes in the organization and structure of forces, mode of action, technique and means of combat.

The war of the future will indisputably bear the imprint of the characteristics of the era in which it will take place, of the conflict situation, of the way crises will appear and evolve, of the battles in the sphere of political, economic, territorial, cultural and other interests. which means that the essence of the phenomenon will not change, and those who study it and those who are preparing to take it, must take into account this reality. Armed force as a factor of power will continue to be the most important material factor in building the power of a nation. Its use will replace the essence of political power with the physical relationship between the competitors of the global era, one of which will be strong enough to dominate the other. Of course, a priority must be the state of security and safety of the critical infrastructure operator analyzed, in the field of the six areas identified at the level of the modern society as being responsible for the state of normality. These activities are included in the Operator Security Plan, as a regulated legislative document that ensures the protection of modern critical infrastructures.

Protection of critical infrastructures in modern society

The ways of achieving the protection of critical infrastructures, regardless of their nature, should start from knowledge of the mechanisms of operation of these types of infrastructures and of the mechanisms triggering emergency situations. The formulation of risks is a result of the efforts regarding the management of the two mentioned mechanisms. The early identification and prediction of the occurrence of a certain undesirable event with the potential for uncertain manifestation, the materialization of which can lead to affect in any way the normality of the infrastructure in question, is essential for the initiation of the critical infrastructure protection process. Among the tools available to those with responsibilities for critical infrastructure protection, an important role is played by the Operator Security Plan (O. S. P.).

[12] Doctoral Thesis, Brigadier General Dan Ghica-Radu, *The Influence of the Operational Environment on the Ways of Using Military Power for Conflict Management in the Age of Globalization*, 2009, Bucharest, p. 97.

The security plan is a strategic document, with the help of which the necessary security status and resilience can be generated following the occurrence of the shock. Based on the protection of critical infrastructures, in particular, and of all the infrastructure of a state, in general, the state of operation in normal parameters of the society engine can be described. When the operating parameters show an acceleration or reduction of the operation of the society engine activity, the most suitable solutions for the urgent return to normal should be identified. Apart from chance, all influencing factors can be considered technical or social; therefore, equations and intervention formulas and algorithms for solving emergencies can be used.

Given the expertise of the field of military operations planning, I propose for analysis and customized application in the field of critical infrastructure protection, a series of principles, concepts and algorithms specific to operational art to support the implementation of the operator's security plan complete picture resulting from the intertwining of measures in different areas that may affect other areas. This plan can be both a document necessary for the commissioning of critical infrastructure and a package of measures for counteracting a hypothetical adversary or a risk that may materialize at some point with catastrophic consequences.

Conclusions and proposals

There are many critical infrastructures in the European Union whose failure or destruction would have strong cross-border effects resulting from the interdependencies between critical infrastructures that are interconnected. That is why such European critical infrastructures should be identified and designated on the basis of a common procedure. The security requirements of such infrastructures should be assessed according to a common minimum approach. There are some bilateral systems for cooperation between Member States on critical infrastructure protection, which is an effective means of protecting cross-border critical infrastructure. I believe that the European Program on Critical Infrastructures Protection (EPCIP) should promote this cooperation and not only. All information on the designation of a particular infrastructure as a European Critical Infrastructures should be classified in accordance with existing legislation in the European Union and in the Member States.

As the various sectors have experience, expertise and specific requirements for critical infrastructure protection, a Community procedure in this area needs to be developed and applied, taking into account the sector-specific elements and existing sector measures and those already in place at Community level, national or regional. If in force, the relevant cross-border mutual assistance agreements among critical infrastructure owners/operators should be applied. Given the involvement of the private sector in the supervision and management of risks, in business continuity planning and in post-disaster recovery, such a Community approach should support the full involvement of the private sector.

All European Critical Infrastructures should have Security Plans for Operators ("SPOs") or equivalent measures in which there is an identification of important elements, a risk assessment and the identification, selection and prioritization of countermeasures and procedures. In order to avoid unnecessary work and overlaps, each Member State should first assess whether the designated European Critical Infrastructures owners/operators have the Operator Security Plan. If such plans do not exist, each Member State should take the necessary steps to ensure that the appropriate measures are implemented. „Each Member State shall decide on the choice of the most appropriate form of action for the establishment of the Operator Security Plan"[13].

It is necessary to understand measures, principles, guidelines, including Community measures (and bilateral and/or multilateral cooperation systems) which provide a plan similar

[13] Available online https://eur-lex.europa.eu/homepage.html, accessed on January 12, 2021.

or equivalent to an Operator Security Plan (or which provide for the existence of a liaison officer for meet the requirements of this Directive regarding the Operator Security Plan or the Security Liaison Officer (SLO).

The state of safety and the state of security are in a two-way relationship; the result is the protection of the entity/operator/state/society/individual. The actions taken for the protection has as result in the rise of status of safety and security.

For those who feel that some of the proposed solutions may seem too complicated to be practical, I bring to your attention a dictum by Albert Einstein: "All things should be made as simple as possible - but not as simple."

BIBLIOGRAPHY

1. *Guide of the National Strategy for the defense of the country for the period 2015-2019*, Bucharest, 2015.
2. SMITH Steve, *The Concept of Security in a Globalized World*, paper presented at the Otago University Conference, Otago, June 2002.
3. LAMY L. Steven, *Contemporary mainstream approaches: neo-realism and neo-liberalism in The Globalization of World Politics*, ed. by John BAYLIS and Steven SMITH, third edition, Oxford Universiy Press, New York, 2005.
4. ALEXANDRESCU Grigore, VĂDUVA Gheorghe, *Critical infrastructures. Dangers, threats to them. Protection systems*, "Carol I" National Defense University Publishing House, Bucharest, 2006.
5. BIDU John, TRONCOTĂ Cristian, *Security coordinates*, ANI Publishing House, Bucharest. 2005.
6. SARCINSKI Alexandra, *Non-military dimensions of security*, "Carol I" National Defense University Publishing House, Bucharest, 2005.
7. KOLODZIEJ Edward, *Security and International Relations*, Bucharest, Polirom Publishing House, Bucharest, 2007.
8. *The paper The Structure of Military Action*, in Philosophical Problems of Military Science, Volume 3, Elements of Praxeology, Military Publishing House, Bucharest.
9. RUSU Sorina-Georgiana, *Planning and designing objectives for defense in the smart city*, Parallel Publishing House 45, Pitesti, 2018.
10. TOFFLER Alvin and Heidi, *War and Anti-War*, Survival at the dawn of the 21st century, Antet Publishing House, Bucharest, 1995.
11. https://studiidesecuritate.files.wordpress.com/2012/02/aspecte-ale-securitc483c5a3ii-moderne.doc,
12. http://ccpic.mai.gov.ro/,
13. http://cssas.unap.ro/ro/pdf_studii/infrastructuri_critice.pdf
14. https://www.journals.elsevier.com/international-journal-of-critical-infrastructure-protection
15. https://www.rsaconference.com/writable/presentations/file_upload/cle-t10-the-role-of-the-isacs-in-critical-infrastructure-resilience.pdf