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THE ROLE OF BULGARIAN INSTITUTIONS IN THE MARITIME CRITICAL INFRASTRUCTURE RESILIENCE NEDKO DIMITROV

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Abstract: The author considers the maritime critical infrastructures resilience as a government responsibility for protection and service continuation and is carried out by the joint efforts of infrastructures operators, state and local institutions, and private actors shaped in a complex system. He gives reasons for the exactly type of the system based on local character of incidents and having common management and separated responsibilities.

Keywords: maritime critical infrastructures protection, maritime institutions, low enforcement structures and armed forces

Introduction

For the analysis of the National Critical Infrastructure, in the interest of organizing its defense and continuation of services provided, it is appropriate to perform systematization on certain signs. Based on the physical nature and the actual location, geographic classification has been applied (see Figure 1). If the regions of the figure identify themselves with administrative district centers, the aggregate of critical infrastructure elements within their boundaries form the entire set of national critical infrastructure. The allocation of critical infrastructure by region facilitates the risk management process for its security and resilience, without disturbing the general concept of its protection. Moreover, elements of national critical infrastructure are concentrated around large centers, and their classification on geographic location does not exclude potential interactions and cascade effects caused by potential impacts.



Fig.1 Systematization of Critical Infrastructure

In certain regions, which also cover the maritime sphere, there are elements of maritime critical infrastructure that do not exist separately and independently each other, but have a certain degree of interaction as well as with other elements of critical infrastructure. Because of the objective existence of such links, maritime critical infrastructure is seen as part of the national critical infrastructure and its

protection as an element of the national security system. It cannot be planned and built separately, as within the state there exist unified national socio-economic and political relations and traditions that are an essential element of the internal conditions of the security environment for the functioning of critical infrastructure. The difference is mainly in physical-geographic conditions, with their specific characteristics and interactions, and they have to be taken into account primarily by the experts performing security risk analysis for the specific elements of the critical infrastructure.

Critical infrastructure (CI) resilience

In general, the resilience of the critical infrastructure depends on its protection against the potential threats and continuation of the services provided in case of negative impact.

The CI protection is organized to ensure its safety and security from the effects of deliberate and unintentional security threats and builds on an object-based principle (see Figure 2).



Fig.2. Critical infrastructure element protection model

Security zones are formed around each CI element to ensure neutralization of the threat before it reaches the CI site. The first zone is an individual protection zone on each site, whether it is on land, has access to water or is located entirely in the water. The second zone is more buffer and may be individual or group depending on the degree of concentration of CI objects in the area. Within these areas, controlled points (one or more of each access zone) are organized in order CI element to be accessed. Area sizes and their permeability (across borders) are defined for each site according to its specific features - location, dimensions, significance, vulnerabilities and how to reach them, element level of risk, etc. The Operational Center is a center for the management of forces and means of CI protection.

The starting point for organizing the protection of each element of CI is the security risk assessment. When there is an unacceptable risk assessed measures for its reduction are taken (See for example [4]), which are subsequently the basis for the development and implementation of the security plan. In essence, this is accomplished by organizing and undertaking within the framework of the national and sectoral normative basis concerted actions of forces and means by objects, place, time and means of protection¹. It is organized by the head of the organization operating the CI element, which by interacting with external agencies creates an organization to limit damage and cascade effects in the event of a security incident and to restore the infrastructure's operational capacity.

¹ The term "concerted actions of forces and means by object, location, time and method" is borrowed from the definition of "operation" in military art of operatins.

Where there are "N" CI elements in the given region, which are mutually interrelated to impacts and effects, it is necessary to conduct risk management at a regional level. At this level (as well as at the national level), it is arranged the interaction between the regional (national) structures of state institutions and physical entities with capabilities for the early detection, prevention and response of security threats, as well as for restoration and coping with damage. This will ensure the better risk management, incident response and CI services continuation.

For more detailed analysis, the process of supporting the CI security and its resilience in the course of a security incident is addressed in the aspect of national crisis management processes (see Figure 3).



Fig. 3 Steps of Crisis Management

Preventive activities are related to risk analysis and forecasting, control of the technical parameters of the premises, training and preparation of the service personnel and that of the critical services, monitoring of the situation for early warning and disclosure. Checks on preparedness for action in the context of security incidents (according to pre-developed scenarios) are carried out.

At the stage of immediate planning and organization of the protection the risk assessment and planning of its management within the critical infrastructure element at the regional and national levels of the protection system is conducted.

The immediate response to an incident is the most dynamic phase in which force disclosure and factual action are taken to offset the threat, carry out rescue operations, remove environmental incidents, and emergency restoration work.

The Restoration phase is developed by playing potentially dangerous scenarios or after actual incidents. The lessons learned are applied to optimize protection by initiating an initial risk analysis to prepare the necessary plans and coordinating documents or to update the disaster protection plans at different levels.

Roles of the Bulgarian institutions and private actors in CI resilience

Based on the analysis of the CI resilience models presented, the hierarchical national critical infrastructure protection system and the crisis management process, a provisional distribution of the

activities and potential CI protection measures can be made between the responsible for this agencies and organizations. Without prejudice to the reasons, two sides are interested in the safe operation of the CI - the State and the CI operator (owner). On the basis of the analysis of the social and economic relations established in the state, responsibilities for ensuring the security of the national critical infrastructure can be divided as follows:

A. Responsibilities of CI element operator:

- carrying out a site security risk assessment;

- development and implementation of a security plan and supporting action plans in different situations (scenarios);

- establishment of a staff element for action in accordance with the security plan implementation;

- implementation of the mandatory requirements for ensuring the safety functioning of the facilities and equipment as well as for the CI element protection, environment protection and continuity of operation. B. Responsibilities of the State:

- introduction with relevant legal norms (regulations, ordinances) of an organization for the establishment of the critical infrastructure protection - procedures, responsible institutions (national and local), organizations and subjects, interaction, maintenance, control, etc.

- introduction the relevant legal norms of construction, technical measures on infrastructure safety etc.;

- introduction of environmental protection relevant legal norms;

- identification of CI elements (sites);

- assigning the necessary forces and resources to agencies and organizations for their involvement in the process of protection;

- provision of training and qualification, expertise;

- authorization (recognition) of a security organization;

- designation of state bodies to control the implementation of measures to build and maintain CI protection;

- providing the necessary information to carry out a risk assessment for the security of the CI sites, the risks and potential security threats, etc.

- checking the up-to-date and functionalities of the security plans of the sites, CI protection plans at regional and national levels;

- control and certification of construction, equipment, safe operation, etc. of the CI sites, and

- financing the activities for which it is responsible.

Some issues appear in responsibilities implementation: The unified National Critical Infrastructure Register, National Program, Annual National Critical Infrastructure Protection Plan, and Critical Infrastructure Protection Programs for Districts are requested by the national legislation but some of the categories are not developed because of lack of knowledge, of coordination or of will. There are also unresolved problems with the involvement of voluntary formations, the mobilization of human and material reserves, the accumulation and use of operational reserves for security incidents, etc. This leads to:

- No funding for CI protection activities that are not actually defined and planned.

- The available resources are engaged to a different extend in supporting the CI resilience.

CI resilience in maritime sphere

When analyzing the possibilities for implementing and fulfilling CI protection responsibilities in maritime sphere, attention will be focused primarily on the maritime critical infrastructure (MCI).

Part of the above-mentioned responsibilities of the state related to the introduction of legal norms on site safety and ecology are not specific to CI, they are general and are part of national legislation already synchronized with the European one in these areas, and are not subject to analysis in the current context. Their application by all entities with CI protection responsibilities is a guarantee of its safety in the specific area.

During the last decade the following categories were examined at the Nikola Vaptsarov Naval Academy, Varna²: maritime sovereignty, maritime power, maritime critical infrastructure, sea space control, models of systems for protection of maritime sovereignty and maritime critical infrastructure, capability planning for the protection of maritime sovereignty, security risk assessment, etc. The results of these developments are directly related to the maritime security system and can be successfully used to train security officers of companies and government structures both theoretically and practically. The accumulated empirical information and systematic knowledge of maritime safety and security form the full amount of information needed to assess threats to the MCI security, its vulnerabilities, and risk management for the security of its components.

Teams of such prepared asset security experts can be hired to perform activities such as: assessing the safety of an element of maritime critical infrastructure, preparing a security plan, as a "recognized security organization". The problem of finding appropriate risk assessment professionals is complex because the team must have information and competence in several non-interrelated areas such as:

- security of assets and information systems, environment protection requirements;

- operations and services of the infrastructure element, including knowledge of the composition of the device and the architecture of the asset;

- the ability to assess the likely security-related vulnerabilities that could be used during infrastructure operations and how to minimize such risks;

- national and international legislation on security, asset operation and related requirements;

- current information on security risks and threats and trends for their evolvement;

- knowledge of weapons detection and detection of general hazardous substances and devices;

- knowledge of non-discriminatory recognition of the characteristics and behavior of persons likely to pose a security threat;

- knowledge of the techniques used to circumvent security-related measures;

- knowledge of surveillance/monitoring equipment and systems and their operational limitations.

In this sense, authorizing an appropriate security organization is a guarantee of the objectivity and completeness of the assessments and plans and, accordingly, of the adequacy of the protection of maritime critical infrastructure.

The conducted analysis of the MCI security has highlighted the necessity of introducing an adequate organization for the construction of the MCI protection. This indicates necessity to be introduced the legal framework of how to establish this system, appointment of agencies, entities and bodies responsible for it, setting up the interaction, maintaining, controlling preparedness for action, supporting continuity of the services etc., reflecting the theoretical knowledge and national specificities in this area.

The responsibilities for Maritime security in the country are defined by the Law on Maritime Spaces, Inland Waterways and Ports of the Republic of Bulgaria [1]. Together with a number of regulations on its implementation³, it reflects the requirements of the International Maritime Organization for the

² The research of Prof. DSc Boyan Mednikarov, Assoc. Prof. Petar Dereliev, Prof. DSc Kiril Kolev, Prof. Kalin Kalinov, Ph.D.

³ Merchant Shipping Code; Ordinance $\mathbb{N}_{\mathbb{P}}$ 7 of 23.05.2001 on the procedure for visiting, maneuvering and staying of ships in harbors and raids, loading and unloading, boarding and disembarkation of the crew, passengers or other persons, as well as for connection ship- shore; Ordinance $\mathbb{N}_{\mathbb{P}}$ H-7 of 12.06.2008 for carrying out diving and other underwater activities; Ordinance $\mathbb{N}_{\mathbb{P}}$ 9 of 29.07.2005 on the operational requirements for ports; Ordinance $\mathbb{N}_{\mathbb{P}}$ 12 of 17.06.2003 on the inspections under the procedure of the port state control; Ordinance $\mathbb{N}_{\mathbb{P}}$ 15 of 28.09.2004 on the transfer and reception of waste - the result of shipping activity and of ship cargo residues; Ordinance $\mathbb{N}_{\mathbb{P}}$ 16 of 20.06.2006 on the handling and transport of dangerous goods by sea and inland waterways; Ordinance $\mathbb{N}_{\mathbb{P}}$ 20 of 17.06.2005 on safety rules and standards for passenger ships; Ordinance $\mathbb{N}_{\mathbb{P}}$ 21 of 5.07.2005 on the safety of fishing vessels; Ordinance on the conditions and procedure for achieving the security of ships, ports and port areas (25.11.2014) ; Ordinance on Traffic Systems, Reporting and Traffic Management and Information Service for Navigation in the Maritime Spaces of the Republic of Bulgaria and in the Bulgarian Maritime Response Area for Search and Rescue; Ordinance on the organization of carrying out border passport, customs, health, veterinary and phytosanitary control, as well as control of the means of transport in the ports of the Republic of Bulgaria, supporting international voyages ships.

Safety and Security of the Sea and in the Ports. They are drawn up in the spirit of the SOLAS 74/78, MARPOL, ISPS-code conventions⁴.

Under the current regulations, our maritime areas have a special status⁵ that allows the free movement of vessels. This facilitates the movement of goods and people by sea but, at the same time, ensuring security is a major challenge.

Conducting business and commercial activities in marine areas implies greater human activity and traffic, which in turn requires more precise control of activities and, at the same time, risk control for the marine environment. At the same time, merchant and passenger ships wish to reach their ports, served in a timely and safe manner. The ships in disaster must be quickly discovered and rescued. Commercial, military and border police ports, as well as other MCI sites must be protected from deliberate and unintended threats. Ships at sea need protection against airborne, on-water and underwater threats. The global nature of threats in the marine environment and the absence of physical borders at sea requires the state to have complex capabilities for protection, security and safety, and at the same time a national contribution to counteracting global challenges.

Fighting the challenges has a pronounced multinational character. This does not exclude national challenges whose national counter-actions can be defined, initiated or controlled by an international organization where Bulgaria has membership, for example if the threats appear nationally, the consequences of negative impacts on MCI could be cross boundary, and vice versa. The activities to counteract the challenges evolution and risk management are implemented within global, regional and national initiatives and unions in political, economic, social, police, military, naval, and others areas.

If we focus on maritime security on a national scale and apply the national security model based on the three pillars [2] broken through the security in maritime sphere (see Figure 4), the activities (responsibilities of the state) should be:

From I pillar - identified with:

- Ministry of Transport, Information Technology and Communications;
- Ministry of Environment and Water;
- Ministry of Agriculture and Food;
- Ministry of Interior (connected to its responsibility of the country's rescue system);
- Non-governmental and voluntary organizations.

From the 2nd pillar - identified with:

- Ministry of Interior;
- State Agency for National Security;
- Non-governmental and voluntary organizations.

From the third pillar - identified with:

- Ministry of Defense;

- Ministry of Foreign Affairs;

- Regional and global security initiatives.

The structure of the model and the scope of the activities are determined by the type of the existing institutions and their responsibilities for the control of maritime areas, set in the number of regulations in this field. Intersection zones exist due to the joint execution of certain functions such as:

- control of the yachts, boats and other vessels for sport, tourism and entertainment;

- control of the diving activity;

- navigational support of the sea traffic;

⁴ Convention on Civil Liability for the Carriage of Nuclear Material at Sea [5]; Convention for the Prevention of Marine Pollution by Deliberate Waste Disposal and Other Materials [6]; International Convention for the Prevention of Pollution from Ships [7]; Convention on the International Regulations for Preventing Collisions at Sea [8]; International Convention on Search and Rescue at Sea [9]; International Convention for the Safety of Life at Sea [10] and others.

⁵ Part of the maritime space is a regular territory of the country, in another area the state has certain sovereign rights and the relevant jurisdiction. On the other hand, international maritime law defines the concept of peaceful passage through the territorial sea, which means free entry into the territorial sea waters of the country, without entering the internal sea waters, passage into or out of the internal sea waters [1].

- search and rescue activities;

- ship persecution and detention in order to seek appropriate responsibility;

- prevention of violations of sovereign rights and jurisdiction within the continental shelf and customs, financial, border and health requirements within the country's maritime spaces⁶, etc.

- is based on the close interaction between the regional subdivisions of the maritime structures of the relevant ministries:

= Executive Agency "Maritime Administration";

- = Port Infrastructure State Enterprise;
- = Navy;
- = Directorate General Border Police;
- = Executive Agency for Fisheries and Aquaculture.



Fig. 4 The three pillars of the national security system in the maritime sphere

Only co-operation and coordinated implementation of the three pillars can provide effective results in the fight against the most recent threat to security – terrorism with all its appearance – asymmetric, hybridity etc.

A number of coordinating interdepartmental documents among the above mentioned institutions define the scope of the joint tasks performed at sea, such as:

= Interaction Plan between the Navy and the Burgas Regional Border Police Sector- 03.1995;

= Instruction for interaction between the Ministry of Defense and the Ministry of Interior of the Republic of Bulgaria - No I-15 / 31.10.2001;

= Interaction Plan between the Bulgaria Navy, the Border Police, the Executive Agency Maritime Administration and the Executive Agency for Fisheries and Aquaculture - 04.2005.

= Plan for the search and rescue operation in the Bulgarian search and rescue area;

= Action Plan of the Navy Divisions for Radiation and Chemical Dangerous Accidents, Natural Disasters and Catastrophes;

⁶ Law on the Sea Spaces, Inland Waterways and Ports of the Republic of Bulgaria, Art.5 (4), Art.27, Art.39, Art.44, Art.61, Art.65, Art.66 [1]

= Joint Interaction Plan between Navy and the Permanent Varna District Commission for Population Protection in case of Disasters, Accidents and Catastrophes.

The recognized need for synergies in the performance of functions by state institutions is indicative of the specificity of the CI environment in the maritime sphere. This implies that the State's responsibilities to ensure the resilience of MCI can be realized only through a comprehensive implementation of the institutions' efforts and a mutually-bound implementation of maritime security status control functions.

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