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## SECURITY SYSTEMS AND SECURITY MANAGEMENT

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**Abstract:** *The systematic approach is a major tool for studying and modeling large social systems, like security and defense. From systematic point of view the security system is a complex system which coordinates many institutions and organizations oriented to produce security and defense as a public good. The paper presents a possible general model of security system and considers the main elements, characteristics and dimensions of this complex social system.*

**Key words:** *security, defense, management*

### **Introduction**

National security policies were traditionally focused on protecting the State against military threats or political violence. While responding to any such threats remains a fundamental responsibility of government, modern concepts of national security manage a much broader set of risks [4].

This broadening of the concept of national security in recent years has been driven by a number of factors. Globalization and trans-boundary challenges such as pandemics, climate change, cyber-attack, terrorism and proliferation of weapons of mass destruction, mean that the risks faced by modern societies extend well beyond national borders [4].

The integrated and networked character of national and international infrastructures, such as electricity, gas and water grids, telecommunications networks, air, rail and shipping services, and the extent to which daily life depends on their efficient functioning, has created new points of vulnerability [4].

The national security system is the system providing security at national level. It should address all significant risks to the nation, so that people can live confidently and have opportunities to advance their way of life.

A risk management approach to national security is intended to integrate preventive and protective measures. Preventive actions aim to minimize the occurrence and scale of any significant harm or disruption. Protective measures aim to build a capacity to respond quickly to adverse events and to return society to normal functioning quickly and efficiently.

The more complex the risk, the greater the need for active partnerships between multiple stakeholders. So, security is managed within a 3-tiered system comprising emergency services, local authorities, and central government. For some incidents these organisations may be assisted by public, private, and voluntary sector organizations and businesses.

The principle of subsidiarity [4] should be applied to national security decisions, which means that the responsibility and authority for decisions, and use of resources, ordinarily rests at the level of those closest to the risk and best able to manage it.

Central Government has two distinct roles in respect of national security:

- To promote confidence in the society, and encourage ongoing national development
- To provide leadership in crisis conditions.

### The model

The model considers the National security system at two main dimensions.

The first dimension is existential dimensions. It considers the main subsystems from point of view of society. They are: Environment (Nature), Economy, Policy and Society. Actually we may consider Society in broader and narrower sense. Society in the model is considered in narrower sense. Policy can be considered as subsystem of Society (in broader sense) but it is considered here separately as it has key role from point of view of security. Economy can be considered as intersection of Environment and Society (in broader sense). So, in the model Society (narrow sense) is actually the part of human society different from Economy and Policy – people, social groups, traditions, family, religions etc.

The second dimension is Security dimension. It includes the following subsystems: Risks, Exposures, Security Products, Security Resources and Security Management. Each of these subsystems intersects with every one of the subsystems in the existential dimensions which gives 20 subsystems of more granular level.

The graphical representation of the model is given in Figure 1.

Next we will start considering the **Risks** subsystem. The model considers the national security on an „all-hazards” basis. This subsystem includes Natural hazards, Economical risks, Political Risks and Technical risks.

Natural Hazards are caused by natural processes independent from the existence of humans. Natural risks cause natural hazards when humans are exposed to them. Such hazards are: volcanic eruptions, earthquakes, snow storms, hail, drought, famine, floods, hurricanes, cyclones, typhoons, meteorites, climate change, bites from animals, bushfires, avalanches, solar radiation, space weather etc.

In the 20<sup>th</sup> century, an estimated 60 million fatalities were caused by natural disasters. On average, 80 000 fatalities per year were caused by natural disasters. In addition to the development over time, natural risks also show some geographical correlation [3].

Risks for economy are internal and external. Internal risks include: unemployment, inflation, economic crises. External economical risks are instability of supply or export, trade balance issues, external debts.

Political risks include: war, terrorism, political crisis, treat to sovereignty and territorial integrity.

Social risks can be divided into health risks, technical risks and other social risks. Health risks include: events (like birth), adverse effects, diseases (cardiovascular, cancer, epidemics and pandemics like bubonic plague, malaria, AIDS, tuberculosis, cholera). Technical risks include: transportation accidents, dumps, dam failures, structural failures, energy and nuclear power plants accidents, radiation, chemicals, fires, explosions, professional risks, information technologies risk, food contamination etc. Other social risks include: suicide, poverty, crimes, drug abuse, alcoholism, sport accidents, mountaineering accidents, panic etc.

**Security resources** can be divided into Environment resources, Economic resources, Political resources and Social resources.

Environment resource for security can be any natural factor which can be actively used for creating security products. For example, relief can be actively used by armies to neutralize the attacks of enemy. Climate conditions also may be used during war to obtain some advantages against the enemy. Waters can be used as transportation route for military units, but also as barrier in front of enemy. There are cases when dams are destroyed during military actions to neutralize the advancement of the enemy. For example, on 9 June 1938, during the Second Sino-Japanese War, Nationalist troops under Chiang Kai-Shek broke the

levees holding back the river Huang He near the village of Huayuankou in Henan [2]. The goal of the operation was to stop the advancing Japanese troops by following a strategy of "using water as a substitute for soldiers" (yishui daibing). The 1938 flood of an area covering 54 000 squared kilometer took some 500 000 to 900 000 Chinese lives, along with an unknown number of Japanese soldiers. The flood prevented the Japanese Army from taking Zhengzhou, on the southern bank of the Yellow River.

Economic resources for security are any economic resources with security use: labor (with knowledge and skills), capital, land, entrepreneurship. For example, military industry uses these resources to produce weapon and military equipment. The national economy itself may be considered generally as economic resource for security with its pulsing degree of militarization in different periods (mobilization, war, conversion, peace period).

Political resources for security are mainly the state itself with its central and local administration as well as specialized security organizations (army, police, fire brigades etc.). One of the main reasons of the state itself is to guaranties the security and sustainable development of the nation.

Security resources of society include people themselves with their different roles in the frame of the institutions providing security: soldiers, policemen, employees in military industry and trade etc.

**Exposures** are values to protect. They can be divided into Environmental exposures, Economical Exposures, Political Exposures and Societal Exposures.

Environmental exposures include any natural resources which could be harmed or destroyed due to natural or anthropogenic hazards. This includes contamination of air, water or soil as well as destruction of biological resources and biodiversity.

Economic exposures include all elements of the economic system of a country. In domestic aspect, it includes mainly sustainable growth, employment and financial stability

Figure 1. Proposed model of security system

SECURITY SYSTEM							
	SOCIETY		POLICY		ECONOMY		ENVIRONMENT
Security Management	Social security management through social security policies and programs	↔	Internal and external security management through internal and external state policy	↔	Economic security management through economic security policies	↔	Ecological security management through environmental policies and programs
	↑↓		↑↓		↑↓		↑↓
Security Resources	People, Social groups	↔	State with central and local administration, specialized security organizations (army, police,...)	↔	National economy and economic resources with security use	↔	Relief, climate, waters, food
	↑↓		↑↓		↑↓		↑↓

Exposures		Life, personal values, human rights	↔	Sovereignty, territorial integrity, rule- based international system, national values, public safety	↔	Sustainable growth, employment, financial stability; stability of supply, positive balance, guaranteed export, reserves	↔	Air, water, soils, biodiversity
		↑		↑		↑		↑
Security Products		Social security system	↔	Internal and external security, activities of the specialized security organizations (army, police,...)	↔	Military sector of economy, security products, security services	↔	Readiness system for protecting public safety form natural hazards
		↑		↑		↑		↑
Risks		Social risks	↔	Political violence and military treats	↔	Internal and external economic risks	↔	Natural hazards

(controlled and small inflation, stable national currency etc.). In international aspect, economic exposures include mainly stability of supply chains, guaranteed export and positive trade balance, stable exchange rate.

Political exposures include the political organization of the nation itself and more specifically sovereignty, territorial integrity, public safety, national values (in interior aspect) and rule-based international system (in foreign aspect).

Societal exposures are life and health of the people, integrity of social institutions like property, religion, culture, traditions, as well as wellbeing of people and social groups.

**Security products** can be divided into: Environmental security products, Economic security products, Political security products and Social Security products.

Environmental security products include any observational and readiness systems for monitoring and predicting of natural hazards as well as contamination of natural resources (air, water, food, soil, biodiversity) or worsening of climate conditions or radiation environment .

Economic security products are the security products (goods or services) produced by economy and more precisely by military industry, trade and logistics.

Political security product is the national security ensured by the state and more specifically by the activity of the specialized national institutions with competence in security – government, ministries (of defense, of foreign and internal affairs, army, police etc.)

Social security products are any products in the frame of social security system – social services, social funds, products of the activity of different governmental and non-governmental organizations focused on social wellbeing.

**Security management** can be divided into: Ecological Security Management (through ecological policies and programs), Economic security management (through economic security policies), Political security management (through External and Internal policy of the state) and Social security management through social policies.

Ecological security management includes set of policies and programs for sustainable and healthy environment.

Economic security management includes political economy and its instruments for sustainable economic development.

Political security management includes the state policy for achieving security of the nation and protecting national interests.

Social security management includes the social security management and its set of policies for wellbeing of the individual, social groups and the whole society.

### **Studying Security System**

As National security system is a complex system in the intersection of different areas of the society and the environment, it requires interdisciplinary knowledge and expertise which includes the knowledge, data and methodology of different sciences – natural sciences, economical sciences, political sciences and social sciences.

There are several useful approaches to be followed for studying the security system.

Systematic approach considers the social security as a complex system with many interacting subsystems as in the proposed model.

Mathematical approach uses mathematical models and permits quantitative study of the all subsystems (including the risks and the indetermination which can be modeled by stochastic techniques).

Economic approach to security systems pays attention mainly on the input (security resources), production and output (security products) of security system. Here a main problem is to distribute the resources in an effective, efficient and optimal way to produce needed security.

Political (managerial) approach or managerial approach deals mainly with the management of the security exposures and security products to achieve security goals.

### **Managing Security System**

Managerial approach to Security system deals with taking decisions and performing actions to obtain the security goals.

This process has the following steps:

1. Problem formulation.
2. Gathering information.
3. Analysis of obtained information.
4. Taking optimal decision.
5. Applying the decision – action.
6. Monitoring and feedback from the action.

Managerial approach follows this process at different levels corresponding to the subsidiarity principle. Correspondingly we consider operational, tactical and strategic level of management of security. Usually strategic management is applied at top management level, tactic management is applied at middle management level and operational management is applied at low management level.

Operational management is management oriented to performing prescribed operations in an efficient way. Operational management is focused on operation.

Tactic management is management oriented to behavior in specific situation. Tactic management is focused on the tactics.

Strategic management [1] is management oriented to the goals of the system in its environment and with vision for future. Strategic management is focused on the vision, strategies and programs.

There are also different approaches to security management: functional, program and situational approach.

Functional approach is approach related to specialization. Operations are grouped into activities and activities are grouped into functions and these functions are managed separately. Functional approach focuses on organizational structure and processes, on formal part of the system and formal regulation of system environment. It takes operational techniques at all management levels.

Situation approach is related to the behavior in specific situation. This means to analyze different scenarios and to choose optional scenarios in real time. Situational management focuses on the scenarios for environment and behavior of the system depending on the scenarios. It emphasizes on the tactic

Program management is related to long-term goals and planning and consists of creating and following programs. Program management is focused on goals and their achieving. It emphasizes on the strategy.

### **Conclusion**

Security System is a complex system with both anthropogenic and natural parts and it needs interdisciplinary approach of studying and management at different hierarchical levels through different approaches. Systematic approach to security gives a holistic view and permits further analysis of different security subsystems. The proposed model of security system may be used as a basis for each and every specific research of different parts of systems providing security.

### **References:**

1. Davis, F. (2006) Strategic management. Prentice Hall.
2. Encyclopedia Britannica: Huang He River (2016b)  
<http://www.britannica.com/place/Huang-He>
3. Proske, D. (2008) Catalogue of Risks. Springer.
4. New Zealand's national Security System (2011) Working Paper.