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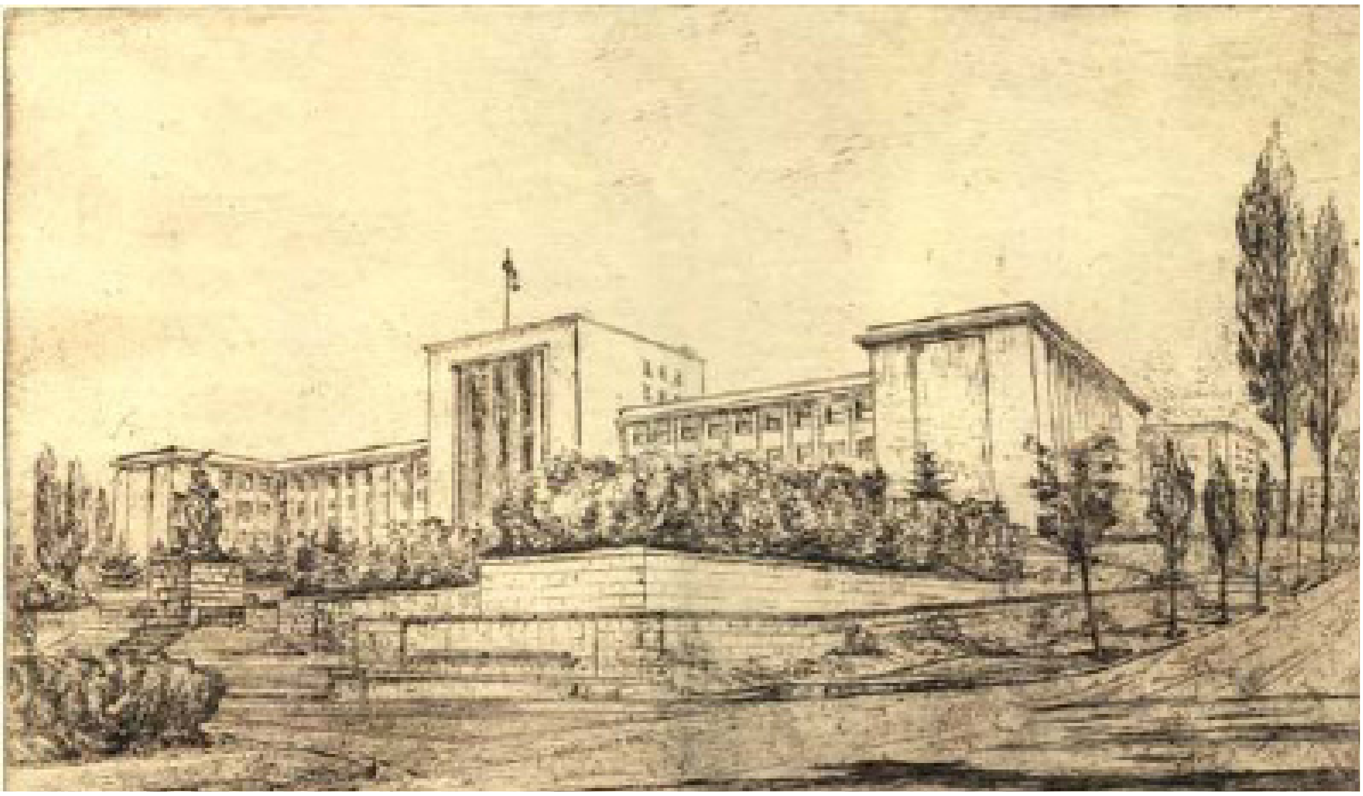

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LIDAR APPLICATIONS FOR EARTH OBSERVATION MISSIONS

Col. Adv.Instr. Pătru PÎRJOL, PhD*

Active remote sensing is a method of detecting bodies and phenomena and includes a wide range of active sensors, able to provide the data required to create images or electronic models of the monitored area, with multiple civilian and military applications. LIDAR is an important technology, with high impact on the development of robotics, automation of the manufacturing process and the development of fully automated and autonomous means of land, air and sea. LIDAR, as an active sensor, determines the distance of an object on the Earth's surface and ensures the high-resolution mapping of the terrestrial surface, the obtained image having higher spatial resolution. Data provided by this sensor ensures the creation of high-precision digital maps, providing the information support for military and civilian activities.

Keywords: air surveillance; LIDAR; LADAR; active sensors; air threats; aerial surveillance systems.

The beginning of World War II marked the beginning of air active military confrontation on an unprecedented scale, characterized by the use in combat of an advanced aerial attack force representing the latest achievements in science and technology existing at the time. The radar played a major role during the air active military confrontations. The conduct of air military operations during the war confirmed the importance of this communication means for air defence, emphasizing its importance in providing the necessary information to the belligerent powers to track and identify the potential airborne threat, as well as ensuring the time required for the subsequent response aimed at fighting and destroying them.

The end of World War II emphasized the ideological contradictions between the URSS and the states of Western Europe and the US, leading to the emergence of the two military blocs: NATO and the Warsaw Pact. The establishment of the two military blocs marked the beginning of a competition that aimed to gain military superiority. This competition has engaged scientific and technological research in order to develop types of air attack, ballistic missiles and cruise missiles as carriers of nuclear warheads. The danger of these aircraft missile vectors has had a significant impact on political and military decision makers, with the effect of making special efforts to design solutions to detect and neutralize these threats. Thus, the design and development of air surveillance systems in order to neutralize advanced types of air attack was targeted. The purpose of political and military decision-makers was to include these air surveillance systems in radar sensor networks designed to detect aircrafts at maximum distance and to develop an airspace surveillance system with a complex architecture, able to provide the necessary information to neutralize potential threats from the air. In this regard, the actions carried out by the air force aimed both to defend against the threats of the opponent and to provide the appropriate framework in carrying out actions needed to neutralize offensive capabilities and destroying military targets that reside in its territory.

The diversification of air threats intensified scientific research conducted to identify new principles and methods of detection. Scientific research contributed to the development of new technologies that improved data quality through the ability to identify characteristics of the target. Another aspect of the scientific and technical achievements was the appearance of a wide range of radars that could fulfill various civilian or military missions, based on new principles and methods for detecting potential targets. The civilian use of these new principles and methods of detection has contributed to the emergence of a ”complex system of techniques used for the remote data processing of objects or phenomena”[1], later known to the scientific community as active remote sensing. Active remote sensing, as a method, has developed rapidly, incorporating a wide range of active and passive sensors capable of providing detailed information about the monitored area.

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Scientific and technological evolution has created the optimal framework for the development of new categories of sensors that have offered new opportunities for surveillance of the area of interest, able to offer new perspectives on the detection and identification of specific objectives. In this study I will pay special attention to and present in detail the active sensors used in active remote sensing, highlighting its military and scientific importance from the perspective of the possibilities of monitoring various bodies, phenomena, etc. Active sensors are instruments that explore, through generated electromagnetic radiation that is artificially created, phenomena and objects existing on the Earth's surface. The information obtained is stored as image data and used in the analysis of the explored environment, constituting complementary information to the images taken by photography techniques. The active sensors used in active remote sensing are the following: radar, sonar and LIDAR[2].

In this article I will discuss in detail the LIDAR, as the technical method capable of delivering relevant and detailed information on the battlefield.

In practice, used two names are: LIDAR[3] and LADAR[4], both referring to same detection device, the term LADAR being used mainly in the military field. As regards the use of these devices in practice, the term LIDAR is used in the civil applications of monitoring and mapping the terrestrial surfaces. At the same time, this term is used in the military applications for the precise determination of targets distances, hence the similarity of the name with the radar.

Whatever may be the practical use of these devices and structural differences between them, their principle of operation is similar to the operating principle of radar. The differences between LIDAR, LADAR and RADAR are due to the fact that LIDAR and LADAR can also provide, in addition to data on target distance, images of it, compared to radar that can determine only the distance. Another difference is that radar operates in the microwave region of the electromagnetic spectrum to detect targets, and LIDAR and LADAR most often use the laser light of the electromagnetic spectrum (including infrared and ultraviolet wavelengths). This difference provides a very good spatial resolution and very small detection errors, contributing to obtaining information about bodies and phenomena with very small size or with physical properties which are difficult to be detected by radar.

The principle of operation of LIDAR is similar to the principle of operation of radar. Similarly, LIDAR emits a short laser pulse which, when it encounters an obstacle, is reflected back to the LIDAR system, where the distance to the obstacle is determined by measuring the time between the moment of emission and the moment of reception of the reflected pulse.[5]

The LIDAR consists of:

• an emission system composed of a laser with the role of generating the probe laser pulses;

• a reception system composed of an optical device having a single lens or a telescope, depending on the destination of the LIDAR and optoelectronic devices composed of photodiodes and photomultipliers, with the role of detecting the light signal and creating the image corresponding to the monitored area;

• navigation system and global positioning system needed to determine more precisely the position and orientation of LIDAR so that the collected data may be used to create maps or images[6].

Therefore, I can say that the technical parameters of LIDAR or LADAR describe the characteristics of the devices in the composition of the transmission and reception systems, respectively the characteristics of the laser, optical devices and electronic devices.

The term laser is an acronym derived from English (LASER – Light Amplification by Stimulated Emission of Radiation) and refers to an optical device that emits light with different properties from the light coming from natural or artificial sources.

The first functional laser was built in July 1960, at Hughes Research Laboratories, Malibu (Southern California) by Theodore H. Maiman, using a synthetic ruby crystal as its gain medium[7]. The theoretical principles of the laser were formulated by Albert Einstein in 1916, when he brought to the attention of the scientific community the concepts of spontaneous emission and stimulated emission. According to this theory, the active environment receives energy from the outside, from a light source, which causes the excitation of atoms. Compared to the initial equilibrium state, the active environment will have more electrons on higher energy levels, phenomenon called population inversion in theory. The passage of a light beam through the absorbing medium will cause the stimulated de-excitation of atoms, having the effect of amplifying it by emitting photons that have the same properties (direction, wavelength, phase and polarization state) as the photons in the beam.[8] However, the implementation of the theories presented was carried out after World War II, when the studies of the great scientist were resumed and the first concrete results were obtained, respectively the achievement of the first MASERs.

Thus, the laser can be defined as a ”device for amplifying or generating electromagnetic waves in the optical field based on the effect of stimulated emission in atomic systems, which allows a concentration of energy corresponding to a temperature of tens of thousands of degrees”[9]. The light beam obtained is characterized by specific properties that differentiate it from natural light. The characteristics of the laser beam that are important for this study are the following:

- mono-chromaticity – a very narrow wavelength emission, resulting from the specific mode of operation, which multiplies the number of initial photons while maintaining their properties;
- coherence – the property of having the same wavelength and fixed phase differences at the same time;
- directivity – the property of propagating over long distances with a very small divergence and, subsequently, the ability to be concentrated in very small areas[10].

The optical device within the reception system has the role of capturing the light radiation reflected from an object Earth’s surface and directing it towards the optoelectronic detector. In order to acquire the best possible light signal, the choice of an optical device (lens, telescope) with the highest magnification power, resolution and aperture, corresponding to the technical requirements of LIDAR or LADAR is considered.

The optoelectronic detector is designed to measure the amount of light energy reflected from objects or targets illuminated by the LIDAR device. The optoelectronic detector consists of photodiodes and photomultipliers that determine with high precision the low values of the light energy received by LIDAR through the optical device, thereby providing an electric current value directly proportional to the amount of light energy received. The photodiode has an important role in the functioning of the optoelectronic detector. The photodiode is an element of an electronic circuit with two electrodes, ”whose functioning depends on the intensity of the light flux falling onto it”[11]. This element is used in the detection of light radiation reflected from objects on the ground due to the following parameters: spectral sensitivity and absolute sensitivity to light[12]. Due to the listed parameters, LIDAR is a light detector with record-high sensitivity and a device that makes high-resolution images of the targets or the monitored area.

Navigation and positioning systems have to determine with high accuracy the trajectory of the mobile platforms on which the LIDAR sensors are mounted. The devices used to determine the position and orientation of the sensor include a receiver of the global positioning system (GPS, GLONASS) and an inertial measurement unit for determining orientation, the latter being replaced by an inertial navigation system[13]. The submitted systems have computers with high storage and processing power, which allow the processing of massive amounts of collected data. In order to determine the space positions recorded by the sensor, it is necessary that the data provided by the reception of laser light reflected from the objects on the ground (data from the global positioning system and those from the inertial measurement unit) be integrated and processed so that the obtained image will reflect as accurately as possible the reality on the ground. Therefore, it is necessary to know the correlation between these systems and the spatial relationship within the assembly formed by the laser, the global positioning system and the inertial measurement system.

Data provided by LIDAR technology include: different time modes of operation of laser, respectively the moment of laser emission and the moment of reception of the laser light reflected from the ground (distance to the target object), data on continuous representation of aircraft position obtained from a GPS receiver available on-board the aircraft and from another ground-based GPS receiver for correcting differences, aircraft altitude data and acceleration data provided by inertial measurement equipment. Obtaining the final product involves a complex process consisting of processing the above-mentioned raw data in various stages of data processing.

The stages of LIDAR data processing are:

• stage ”0”, *data and metadata*, which consists of raw data collected and stored on the mapping platform, including data obtained by laser measuring tools, GPS, inertial measurement system, as well as mapping data and other elements relating to coordinates, date, sensor type, sensor calibration data;

• stage ”1”, *the unfiltered 3D point cloud*, which consists in the representation of data, resulting from the measurement of objects, in the form of a 3D point cloud, obtained by using specific algorithms to transpose raw data into a three-dimensional space application; metadata from the previous stage is carried over to the current level;

• stage ”2”, *3D point cloud noise filtering*, consists in the fact that the unfiltered 3D point cloud from stage 1 was processed, using specialized algorithms for eliminating false data or the noise resulting from receiving laser radiation or anomaly data resulting from data processing; metadata from the previous stage is carried over to the current level;

• stage ”3”, *the registration of the 3D point cloud to a known geodetic database*, which consists in adjusting the processed data using the correlation between the identifiable objects in the database and data containing known geodetic coordinates, corresponding to the field objects, in order to improve the accuracy of the data collected from the LIDAR sensor;

• stage ”4”, *derived products* are obtained from the data in stage 1, 2 and 3 and the stage consists in the development of some standardized products by using standardized working methods or tools;

• stage ”5”, *intelligence products* are obtained from the data in stage 1, 2 and 3 and the stage consists in the development of community-based information products, that are obtained through domain-specific specialized tools or knowledge[14].

The main types of LIDAR are:

• topographic map – for landscape, infrastructure and vegetation measurements;

• bathymetric map – for measuring the depth of water, indicating the underwater relief and determining its profile, mapping of shallow waters, up to 50 meters, depending on water clarity;

• differential absorption LIDAR (DIAL[15]) – for measurement of atmospheric chemical composition[16].

LIDAR can be mounted on aerial and space platforms or ground based platforms. Compared to the ground-based LIDAR, the aerial LIDAR can monitor and map very large land areas in a very short time due to the advantages offered by altitude surveillance and the technical advantages of aerial systems. The aerial platforms that have LIDAR sensors mounted on-board are: airplanes, helicopters and drones. The space platforms with LIDAR sensors are: satellites, space shuttles and space stations.

The terrestrial platforms used for specialized LIDAR applications can be fixed or mobile. LIDAR mounted on fixed terrestrial platforms is most common as a survey method, due to the relatively short time of obtaining the image, through a quick comparison with existing objects in the scanned area. Lidar applications are used in monitoring areas of interest, economic objectives, cultural heritage documentation, etc. LIDAR mounted on mobile terrestrial platforms presupposes the existence of satellite tracking devices and inertial measurement equipment. The products obtained by using LIDAR on a mobile terrestrial platform can represent 3D models able to make all the necessary measurements without being necessary a field presence. An example may be the surveillance of urban areas where it is necessary to make measurements on the height of bridges, power lines, trees, distances between buildings, etc.

LIDAR mounted on-board space platforms is used for both scientific research and navigation in space, development of planetary measurements or mapping the celestial bodies of our solar system. LIDAR has been used in scientific research to study the Earth’s atmosphere, Earth’s constituent elements, such as water droplets or industrial pollutants that would have been difficult to be detected with other measuring instruments. Another application of LIDAR mounted on space platforms is mapping the planets in the immediate vicinity of the Earth (Mars, Mercury) and the Moon, obtaining accurate and detailed 3D maps of the studied celestial bodies.

LIDAR mounted on aerial platforms consists of a laser scanning system designed to determine the distance by illuminating the target with laser light, a satellite tracking device and inertial measurement equipment. LIDAR mounted on aerial platforms creates a 3D point cloud model of the landscape, being the most precise and detailed method of making the digital elevation models, thus successfully replacing photogrammetry. Scanning in these conditions ensures the possibility to eliminate the influences of vegetation allowing the creation of digital maps of the landscapes or other places (rivers, archeological sites, etc.) that we sometimes cannot see because of the trees. An important aspect of LIDAR's use refers to the altitude from which the Earth's surface is scanned, having high-altitude and low-altitude applications. The differences in the final product, the digital image of the terrain, consist in a lower density of 3D points for high altitude scanning, so a lower accuracy of these digital terrain models compared to the accuracy obtained when scanning at low altitudes. There are some differences between high-altitude LIDAR system and low-altitude LIDAR that consists in a reduction in both accuracy and 3D point density of data acquired at higher altitudes

LIDAR mounted on aerial platforms can be used in bathymetry, for the development of digital bathymetric models for shallow waters, such as the study of lakes, rivers, seas near the shore, etc. Bathymetric LIDAR uses water-penetrating green light because of the penetrating power of this wavelength to up to 50 meters in depth. The technique is useful in mapping seabeds, lakes, etc. to create a digital model necessary for the study of underwater habitats, of the evolutions and transformations that occur in these environments, constituting a real support for the scientific community.

In conclusion, LIDAR is an active sensor that offers the possibility of mapping the Earth's surface with high precision, providing the necessary data to obtain images with a resolution of the order of centimeters. The sensor allows mapping natural phenomena with rapid evolution such as waves and coastal area tides, changes in physiognomy and evolution of riverbeds during floods, etc., providing the necessary data to develop predictive models that allow users to understand how the phenomena have occurred and evolved and to identify the best way to mitigate their impact on the environment and human communities.

Using LIDAR in the mapping Earth's surface has the following advantages:

- it allows the accurate measurement of the terrain morphology;
- it partially penetrates the vegetation, providing information on its type, size and impact on water runoff or landscape;
- it is a fast method of creating the Digital Terrain Model (DTM) that would be practically impossible to achieve with such precision by terrestrial measurements;
- it offers a complex image of the studied area by combining the data derived from aerial photographs;
- it obtains information quickly, compared to traditional methods.”[17]

Using LIDAR has the following disadvantages:

- using LIDAR in certain projects of land area measurement or mapping might be expensive;
- inefficiency of LIDAR scanning in difficult weather conditions with heavy rains, heavy clouds, fog, in conditions of heavy smoke or surface of transparent media where there is no dispersion of the beam;
- time- and cost- intensive activity for processing large amount of data collected by LIDAR;
- certain wavelength range and intensity of the laser light might determine damage to the human eye;
- penetration with difficulty extremely dense matter[18].

LIDAR is used for multiple civilian or military applications because the information contained in digital images enables high-resolution map of the Earth's surface. Civil applications of LIDAR are used in the following fields:

- LIDAR is used in agriculture: to control and coordinate agricultural robots; make topographic maps of agricultural fields and classify them according to yield; to use the necessary fertilizers in order to improve soil fertility and to increase yield potential of the agricultural lands; to detect and monitor existing insects in the agricultural field, detecting their species and their movement behavior; to identify species of plants in order to apply weed control measures in agricultural crop production;
- LIDAR is used in archeology to create high-resolution digital models to detect archaeological sites obscured by dense vegetation;

• LIDAR is used in autonomous vehicles: to detect and avoid obstacles so that they can move safely;

• LIDAR is used in transportation: for development of driver-assistance systems for the safety of the vehicle and passengers;

• LIDAR is used in biology: to assess and measure the biodiversity of the scanned area, to take height measurements of trees, to observe change in biomass, etc.;

• LIDAR is used in geology and pedology: to detect topographic features such as river terraces, to measure vegetation height, etc. which allowed the understanding of the physical and chemical processes that shape Earth's landscapes; it is used in structural geology to study land elevation, slope change detection, water infiltration, etc.;

• LIDAR is used in study of the atmosphere: to perform measurements on cloud formations, air mass movement, to study aerosols, greenhouse gas emissions, fires, humidity, etc.; DIAL measures gas concentration in the atmosphere;

• LIDAR is used in mining: to monitor and scan periodically mineral extraction areas and to compute volume of extracted ore;

• LIDAR is used in law enforcement: to calculate speed of vehicles, within the forensic field, to precisely map and to record the crime scene in order to analyze the evidence at a later point in time;

• LIDAR is used in physics and astronomy: to find the location of the Moon in the sky and to conduct experimental tests of the general theory of relativity; snow detection in the atmosphere of Mars; to measure the density of certain constituents of the Earth's middle and upper atmosphere; nuclear fusion research; to provide three-dimensional maps for autonomous landing of unmanned aerial vehicles, etc.;

• LIDAR is used in optimizing wind farm performance: to measure wind speed, to provide wind-turbine blade information allowing wind turbine controls and blades to adjust appropriately to various conditions, to proactively adjust blades to protect components and increase power, to assess the wind power potential of an area, etc.;

• LIDAR is used in optimizing photovoltaic power plants performance: to determine the optimal placement of photovoltaic solar power plants and to analyze the influence of vegetation, land, buildings, etc. on the efficiency of the solar power plant;

• LIDAR has other uses such as: making videos in music industry, movie industry, etc.

In the military field, LIDAR is used in a broad range of military operations. It has the ability the position or movement of the objects and measure their speed, being used to measure the speed of cruise missiles. It has also the ability to scan and detect landmines, being used in the de-mining of former conflict areas. LIDAR plays an important role in detection of chemical and biological warfare agents, being able to detect artificial clouds containing chemicals or pathogens at a standoff distance of up to 30 kilometers. LIDAR sensors might contribute to the massive entrance of autonomous military robotics into the arsenals of armies and their increasing use in future military operations.

Militarily, LIDAR, regardless of its basic design, constitutes a data source that ensures the implementation of detailed and precise electronic battlefield. Detailed 3D images will ensure understanding the operational reality and will enhance the adaptability to the realities of the modern battlefield. LIDAR enables high-resolution maps of the areas of interest, the detection of the opponent's means of combat, of the cruise missiles, of chemical and bacterial contamination in various areas, etc.

In conclusion, LIDAR is an extremely useful tool for monitoring and mapping the Earth's surface. LIDAR is used in almost all areas of social life because of its multitude applications for civilian and military use or the ability to accurately detect the terrain morphology, to identify plant and animal species in the scanned areas or to detect buildings hidden among vegetation. The collected data contribute to the understanding of natural phenomena, the impact of human activity on the environment, providing the necessary information support for the constant development of three-dimensional electronic maps. Militarily, LIDAR will ensure an accurate three-dimensional image of battlefield terrain, enabling battlefield dominance by holding the initiative and maintaining freedom of actions in battle.

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ROMANIAN ARMY IN SUPPORT OF LOCAL AND CENTRAL AUTHORITIES FOR MANAGING THE HEALTH CRISIS CAUSED BY THE COVID-19 PANDEMIC

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The contemporary society is facing, during this period, a phenomenon unprecedented in the last hundred years (since the Spanish flu from 1918-1921), extremely complex, difficult to manage and with global expansion – the current pandemic of atypical pneumonia. In an increasingly interconnected and interdependent world, in which human mobility is constantly growing, Romania has in its turn become overwhelmed by this plague. The identified dangers, corroborated with the virulence and high contagiousness of the new SARS-CoV-2 coronavirus, imposed, at the level of the Romanian state, an inter-institutional and interdepartmental approach to the management of the problem generated by this pandemic. The Romanian Army as a component part of the National Emergency Management System was called upon to support the management of the special emergency situation generated by the COVID-19 pandemic.

Keywords: Coronavirus; pandemic; sanitary crisis control measures; Romanian army.

The appearance and evolution of the health crisis generated by the infection with the SARS-CoV-2 virus in Romania

Coronaviruses (CoVs) are viruses belonging to the order Nidovirales, the family Coronaviridae, the subfamily Orthocoronavirinae, which infect humans and a wide variety of animals (birds and mammals). The disease is characterized by predominantly respiratory symptoms: fever, dry cough, dyspnea of varying severity and may progress to bilateral interstitial pneumonia, respiratory failure or acute respiratory distress (ARDS) which is the leading cause of death.

In December 2019, the first people infected with the SARS-CoV-2 virus appeared in Wuhan, Wuhan Province, China, from where it spread rapidly in most Chinese provinces and most countries in the world, causing a pandemic.

The appearance of this virus in Romania was due to the transit of people, initially only cases of import being confirmed. The official data showed that the main source of contamination for Romania was the entry into the country of Romanian citizens who came from Italy, or who had contact with a person from this country.

On February 26, 2020, the Romanian state officials announced the first confirmed case of coronavirus in Romania. It was a 20-year-old man from Gorj County, who had come in contact with an Italian citizen diagnosed with this disease and who had visited Romania between February 18-22. Two months later since the onset of new coronavirus infections, the number of confirmed cases had exceeded 10,000.

The first death was reported on March 22, 2020, almost a month after the first case was detected. It was a 67-year-old man from Craiova, confirmed with COVID-19 on March 18. Two more deaths were confirmed on the same day.

From the beginning of the crisis until now, the epidemiological situation in Romania has registered an ascending evolution, and on October 26, 2020 the number of people infected with the new coronavirus COVID 19 reached 212,492, of which 151,811 patients cured, and 3% (6,470) of the infected persons died.

The high infection rate, recorded in recent months, which in many localities has exceeded the threshold of 3 ‰ worries the Romanian authorities, because there is an increased risk of infection for vulnerable people (with risk factors for severe forms of COVID-19, such as the elderly) and for health workers, especially in primary medicine, requiring targeted public health action.

Measures taken at the level of the Romanian state for the management of the health crisis generated by the COVID-19 infection

The appearance of the new coronavirus in China and its extremely rapid spread globally, determined the Romanian state officials to take

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measures in all socio-economic fields, with gradual implementation in order to limit the contamination of the population with this virus.

Analyzed from the perspective of the evolution of the health crisis situation, generated by the infection with the new Coronavirus in Romania, the measures ordered by the Romanian state authorities can be framed in three distinct stages, namely:

a) Stage I – first emergency measures, corresponding to the appearance of the first cases of infection and the onset of the health crisis;

b) Stage II – measures ordered in the state of emergency - corresponding to the alarming increase of cases of infection and exacerbation of the health crisis;

c) Stage III – measures ordered in the state of alert-corresponding to a decrease in cases of infection with the new Coronavirus and control of the health crisis.

Corresponding to the first stage, on January 22, 2020, the Romanian government announced several preventive measures, including the designation of six hospitals where patients would be hospitalized and would be screened for the new new coronavirus 2019-nCoV. It was also ordered to install thermal scanners in all airports, to detect passengers whose body temperature exceeds 38°C. An inter-ministerial committee was set up to monitor and manage potential new coronavirus infections, consisting of specialists, under the coordination of the Ministers of Health, Foreign Affairs, Home Affairs and Transport, Infrastructure and Communications.

After confirming the first case of SARS-CoV-2 infection, on February 26, 2020, the Minister of Health issued the Order for the establishment of the quarantine measure for persons in an international public health emergency caused by COVID-19 infection and the establishment of measures to prevent and limit the effects of the epidemic.

The evolution, on an ascending trend of the health crisis in Romania, forced the Romanian state authorities to order the prohibition, starting with March 8, 2020, of public or private events, in open or closed spaces, with a number of participants greater than 100 people. In the set of preventive measures, to limit the spread of infection of the population with the new Coronavirus, the National Committee for Special Emergency Situations decided to suspend the educational process in schools in preschool, middle school, high school, post-secondary and vocational education, between March 11-22 2020, with the possibility of extending this measure depending on the situation. At the same time, road passenger transport was suspended for all journeys to and from Italy (from 10 March) and rail transport to and from Italy (from 12 March). For food units and public and private providers of passenger transport, the obligation to frequently disinfect the surfaces, to avoid crowding in commercial spaces, and to frequently disinfect the passenger compartment in the means of transport was established. For staff in public and private institutions, where possible, the possibility was created to carry out their duties at home.

Despite all these preventive measures, it was not possible to control the COVID-19 epidemic, thus, from the beginning of the health crisis until March 15, 2020, there was a massive increase in the number of people infected with SARS-CoV-2 coronavirus in Romania which determined the establishment of a new set of measures corresponding to the second stage. In this context, the President of Romania, Mr. Klaus Werner Iohannis, signed on March 16, 2020, the decree on the establishment of the state of emergency on the territory of Romania for 30 days, and on April 14, 2020 was signed the decree to extend the state emergency for another 30 days.

With the declaration of the state of emergency, the measures to prevent the spread of COVID-19 and to achieve the management of the consequences were tightened and targeted all areas of socio-economic life (public order, economic, health, labor and social protection, justice, foreign affairs, other measures).

For the integrated coordination of medical and civil protection response measures to the emergency situation generated by COVID-19, the Ministry of Internal Affairs was designated, through the Department for Emergency Situations, in collaboration with the Ministry of Health and other institutions involved in accordance with the provisions of the Government Decision no. 557/2016 regarding the management of risk types.

Within the measures aimed at the public order, Decree no. 195 of March 16, 2020, issued by the President of Romania, Mr. Klaus-Werner Iohannis Bucharest, provided that ”the Ministry of National Defence supports, upon request, the

Ministry of Internal Affairs in order to ensure security and protection of certain objectives/ areas, the transportation of troops, materie land equipment in order to accomplish specific missions, epidemiological triage, medical assistance and other missions according to the evolution of the situation”. The same normative act mentioned the fact that, ”Institutions within the National System of Public Order and National Security supplements, when needed, the force and equipment for intervention, included in plans, according to the evolution of the situation”.

The implementation of the measures put in place during the state of emergency has had the consequence of keeping the epidemic under control and decreasing the number of cases of COVID-19 disease. As a result of this fact, the President of Romania, Klaus Iohannis promulgated, on Friday, May 15, 2020, Law no. 55 of May 15, 2020 on some measures to prevent and combat the effects of the COVID-19 pandemic.

The state of alert was declared as a necessity for the continued provision of adequate protection against SARS-CoV-2 coronavirus disease, but also the creation at the same time of the framework premises for the staged return, without major syncope, to the situation of normality, including by relaxing the measures taken in the context of the establishment and extension by the President of Romania of the state of emergency on the Romanian territory[1].

The measures comprised in Law no. 55 of May 15, 2020, corresponding to the *third stage,* were applied through Romanian Government Decisions, at the proposal of the respective ministries or CNSSU (National Committee for Special Emergency Situations)[2]. They were related to the relaxation of interdictions instituted during the state of emergency by resuming socio-economic activities in conditions close to normality.

Relaxation failed to bring an improvement of the sanitary situation in the countru and a series of factors favouring crowds of people, such as the re-opening of hotels and restaurants, as well as the local elections in September 2020, led to an accutization of the sanitary crisis, taking the country into the second wave of infection.

The restrictive measures are bound to be kept and reinforced, adapted to the epidemiological context of the country and the region, in order to preserve the citizens' state of health at an adequate level as well as to keep the sanitary crisis under control.

In this context, the Romanian Army is going to have to remain at a high level of alert which might provide it an adequate and timely reaction, but at the same time it is going to need to adapt and increase its response capabilities to the realities in the field.

The role and importance of the Romanian Army structures in managing the COVID-19 crisis

The outbreak of the COVID-19 epidemic and the establishment of the state of emergency on the Romanian territory, had effects regarding some of the missions of the Romanian army. The support of the central and local public authorities in emergency situations became, during this period, the Center of gravity of the Romanian Army missions. However, the security aspects were not neglected, in this way, the Romanian Army remained permanently ready to defend itself against any threat and to prevent the transformation of the current health crisis into a security crisis.

An analysis of the missions executed by the Romanian Army during the health crisis generated by the infection with the new Coronavirus reveals the fact that they targeted the following fields: public order, sanitation, humanitarian assistance.

It is good to know that some of these missions, especially the one of ensuring public order, are not specific to the army, they represent new challenges for the Romanian military. Having a pronounced novelty character, the accomplishment of the missions at tactical level also generated certain dysfunctions. These refer especially to the interoperability of the media from the endowment of the Romanian army with those used by police and gendarmes. The joint effort of the staff of the two ministries meant that all the identified disruptions were resolved in a timely manner, so that as of March 25, 2020, about 10,000 soldiers along with hundreds of technical means were engaged in public order missions.

One of the missions performed by the Romanian Army soldiers, in the field of public order, was to patrol the streets of the Capital and all the major urban agglomerations in the country. The presence of the military in the public order patrols was very well received by the citizens, creating a sense of security among them and thus confirming the statistics on the trust of Romanians in institutions, which ranks the Romanian army in first place.

Another mission in the field of public order, fulfilled by the Romanian army, was to ensure the flow of traffic at the state border crossing points in the western, southern and eastern areas of the country. The main border points where the military acted are: Siret (Suceava), Sculeni (Iaşi), Albiţa (Vaslui), Vama Veche and Ostrov (Constanţa), Giurgiu (Giurgiu), Bechet and Calafat (Dolj), Iron Gates 1 (Mehedinţi), Stamora Moraviţa, Jimbolia and Cenad (Timiş), Nădlac 1, Nădlac 2 and Vărşand (Arad), Petea and Halmeu (Satu Mare).

The taking over and ensuring the guarding by the Romanian Army soldiers of a number of 84 objectives, under the responsibility of the Romanian Gendarmerie, located in Bucharest and in other 28 counties, represents the task that corresponds most with the basic training of the military. About this mission it can be said that it has the longest period of development, being maintained both during the state of emergency and during the state of alert.

The involvement, in the sanitary field, of the Romanian army, for the management of the sanitary crisis generated by the infection with the new Coronavirus must be analyzed on several levels.

First of all, we must mention that the military hospitals subordinated to the Ministry of National Defence have been included in the national health network for the treatment of patients infected with SARS CoV-2. Also, in order to supplement the hospital care capacities, the Romanian army installed three military campaign hospitals in the localities of Bucharest, Constanța and Timișoara.

An important aspect that should not be neglected is the fact that all the infrastructure necessary for the installation of field hospitals was made by the military. In this sense, the significant contribution of the engineers from the 96th Engineer Battalion ”Bucharest Fortress” and the 136th Engineer Battalion ”Apullum” can be noticed. Soldiers with vast national and international experience arranged in record time the platforms on which the hospital modules were to be installed. At the same time, the engineers created the communication routes inside the hospitals, necessary to ensure the sanitary flow, but also the drainage and rainwater collection works.

Another aspect of the support of the Romanian state authorities, offered by the military, in the sanitary field, refers to the takeover, during the state of emergency, of the management of several county emergency hospitals by military doctors. The appointment of military doctors to lead hospital units was a last resort for managing the health crisis in localities severely affected by SARS CoV-2 infection. At the same time, the soldiers from the CBRN Defense structures (E.g.: 202 CBRN Defense Battalion (Disaster Intervention) ”General Gheorghe Teleman”), carried out missions for decontamination and disinfection of roads in localities severely affected by the epidemic.

In the same context, the aircraft belonging to the Romanian Air Force, configured for medical evacuation missions, carried out, at the request of the Department for Emergency Situations, several emergency humanitarian missions for the transfer of patients in serious condition, positively confirmed SARS-CoV-2, in hospitals specifically designed to treat COVID-19 infection.

The mention, even if it simply a review of the main missions fulfilled by the Romanian army soldiers in this difficult period, brings to the fore a fundamental institution of the Romanian state, in the service of the people, always ready to act for the preservation of values and national interests.

Conclusions

The Romanian Army is the main institution through which the instrument of military power of the Romanian state is operationalized. However, beyond the basic function of national and collective defence within the North Atlantic Alliance, the Romanian army also fulfills support functions, in case of various civil crises and emergencies.

The intervention of the Romanian Army’s military in the process of managing the health crisis involved action in unique, complex and demanding situations, but the high adaptability and high professionalism of the military, made all missions entrusted meet the required standards.

Without diminishing the importance of other forces and branches, the intervention of the army in the management of the health crisis highlighted the significant contribution of certain branches and military specialties, which must be taken into account by military decision makers so as to be modernized and developed them.

Here I refer primarily to the branch of medical service, which through military doctors, doctors with rich operational experience, managed to implement effective measures to control outbreaks of COVID-19 initially gone out of control (E.g.: Suceava County Emergency Hospital) .

Secondly, the soldiers from the CBRN Defence weapon have demonstrated their value and efficiency in the disinfection actions of the localities severely affected by the SARS CoV infection. Also, the specialists from the Scientific Research Center for CBRN Defense and Ecology made the first Romanian production isolate, which is currently widely used in health interventions.

The health crisis that Romania is facing these days has generated, in certain situations and in a segment of the population (elderly people, without relatives or living in isolated areas) also a humanitarian crisis. In this situation, the soldiers from the civil-military cooperation structures highlighted not only their high professionalism, but especially their high human virtues, among which we can list: empathy, the spirit of self-help, compassion, etc.

Last but not least, military engineers played an important role in this crisis. As General Constantin N. Hârjeu mentioned as ”useful for peace and indispensable in war”, the soldiers belonging to the engineer branch proved their usefulness, but especially the professionalism and dedication with which they acted to build the infrastructure necessary to install three field military hospitals.

NOTES:

1 *Legea nr. 55 din 15 mai 2020 privind unele măsuri pentru prevenirea şi combaterea efectelor pandemiei de COVID-19,* https://www.presidency.ro/presedinte/decrete-si-acte-oficiale/, accessed 22.10.2020.

2 *Ibidem*.

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*** *Decretul nr. 195, din 16 martie 2020.*

*** *Decretul nr. 240, din 14 aprilie 2020.*

*** *Ordonanța de urgență nr. 21, din 15 aprilie 2004* (actualizat).

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THE IMPACT OF TERRORIST THREATS ON UNITED NATIONS PEACE OPERATIONS

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Through its manifestations and multiplied effects, terrorism is not only a threat to the stability of the international system and global security, but also a challenge to international organizations. UN peace operations are taking place in conflict zones characterized by a range of multiple threats. This article aims to present the effect of the terrorist phenomenon - a dynamic threat - on UN peace missions and operations, but also to address the dilemma: more robust mandates for these missions and operations, in order to ensure the capabilities, strategic concepts and training needs to combat terrorists' activities versus undermining the international legitimacy of the UN and its role as an impartial mediator in the conflict.

Keywords: stability; failed states; violent extremism; radicalization; fundamentalism.

Preliminary considerations

The events of September 11, 2001 were the premise by which the international community, through the United Nations Security Council, agreed to intervene much faster in the failed states, considered ”safe-havens” for terrorist groups. The sovereignty of these states was not only understood as a safeguard against any external interference but also a fundamental obligation that the state has towards its own population, in terms of security.

Thus, due to the deterioration of issues related to good governance and institutional efficiency, these failed states have a high potential in terms of cross-border threats: terrorism, organized crime, armed attacks, disease, civil conflict.

The international community has a vital interest in developing strategies and tools to combat the resurgence of the terrorist phenomenon, with a direct impact on the stability of the international system and global security.

Article 2 of the UN Charter states that the United Nations shall not intervene in matters falling within the domestic jurisdiction of any states[1], but Chapter 7 of the Charter provides, as an exception to the principle of non-interference, for coercive measures, including military intervention where the Security Council determines that there is a threat to security and international peace[2].

It must be said that the phenomenon of globalization determines the interdependence of all aspects related to conflicts in a given area, with effects difficult to measure. Thus, the states of conflict in certain areas of the world (Iraq, Somalia, Yemen, Libya or Afghanistan) acquire international dimensions, by practically multiplying them.

Some conflicts are endemic; in areas such as the Middle East, multiple, dynamic and evolving threats have led to an endless series of religiously or ethnically motivated clashes.

The prospect of a wide spread of the terrorist phenomenon is very real and justifies the efforts of the international community to find viable, long-term solutions, although it is not very simple. In a brief analysis of the security environment in Africa, for example, after the Cold War, we can identify two trends.

The first trend is that, although characterized by a high poverty rate, the African continent is now experiencing a substantial reduction in violence and conflict compared to the 1990s. The number of conflicts on the continent in the first 30 years since the independence of African countries increased in the early 1990s and has declined significantly since then.

The second trend is the changing nature of armed conflicts in Africa. Although civil wars have been the most important feature of the continent's post-colonial history, today they are, mostly, at a small and structurally different dimension.

Non-state actors have reduced military capabilities and are divided into factions that fail to act coherently, in a uniform manner. Rebel groups operate mainly in border areas, and their

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type of conflict involves terrorist, violent extremist actions and asymmetric tactics. In addition, there is a decline in mass crime and genocide against the civilian population, which is characteristic of African postcolonial civil wars.

Regarding the manifestations of terrorist groups in Africa, it should be noted that they are constantly developing in areas with active conflicts: Al-Qaeda in the Islamic Maghreb and Libya (AQIM); The Movement for Unity and Jihad in West Africa (MUJAO); Boko Haram and Ansaru in Nigeria and Cameroon; Harakat al-Shabaab al-Mujahideen (Al-Shabaab) in Somalia; Lord Resistance Army (LRA) in Central Africa; ”Democratic Forces for the Liberation of Rwanda” in Rwanda; the ”M23” rebels in the Democratic Republic of Congo and the Ansar al Dine group in northern Mali.

The activities of the groups listed above are carried out across borders, without restrictions, active cells operating independently, but also showing loyalty to the core group and its ideology. Such cells, made up of ”foreign fighters” from countries known as ”safe-havens” for terrorists (Sudan and Libya, for example), have a monopoly on violence in countries such as Syria, Iraq, Afghanistan and, in particular, in a smaller number of cases, in Somalia, Mali, Kenya, Nigeria and other African countries.

At the same time, there are tendencies to carry out joint violent actions between Al-Qaeda, the Islamic State, Boko Haram, and other regional groups, well determined in space and time, in order to achieve a major impact. Areas where terrorist groups are present are usually hard-to-reach areas for government officials, with almost non-existent infrastructure and social services, often in border areas linking two or more states. Here the population is neglected and marginalized politically, socially and economically, this favoring the emergence of the terrorist phenomenon and violent extremism.

Terrorist groups, currently active in Africa, are usually affiliated with ideological trends, mainly of a religious nature. The fusion between religion and radicalization is largely established when the identity of the individual or group, through subversive and persuasive measures, is confiscated, thus seeking to gain new followers and, at the same time, influence social and political decisions.

In terms of recruiting its members, religion serves as a catalyst and has the role of legitimizing the use of violence to satisfy the needs. People in poor areas are targeted, with no possibility of improvement, in the short, medium and long term of social life. Where there are social inequities, lack of food, medicine, lack of resources to ensure a living, extremist ideologies present themselves as a miraculous solution and as a form of escape. The message is adapted by recruiters to suit different contexts, as well as the typology of the masses. In general, lack of education and dependence on religious leaders are inevitable consequences of the neglect, by the political factor, of these socially, economically and politically marginalized generations.

The attacks organized by the terrorist groups are extremely large and include a vast arsenal: firearms, car traps, suicide bombers, magnetic mines. Also, armed conflicts between armed groups of rebels (Boko Haram, Sudanese Liberation Movement, Sudanese Liberation Army, Islamic State) at the regional, inter-tribal level, organized crime (assassinations, drug trafficking, armed attacks, armed robberies, kidnappings, hostage-taking), as well as aggressive protests, demonstrations, coups constantly fuel the spiral of violence.

The impact of the terrorist phenomenon on UN peace operations

In the historical context, within the United Nations, peace operations have also taken place in areas with terrorist threats, even if they were not directed against UN personnel.

These peace operations have also undergone an evolution and a certain adjustment over time, in order to permanently adapt to historical realities (the post-Cold War period, the events of September 11, 2001 – turning points in international relations) and in order to diversify the range of effective responses to emerging threats of a hybrid or asymmetric nature.

Following the Brahimi report[3] since 2000, when the idea of setting up a fusion center with the purpose of gathering and exploiting information in support of peacekeeping missions was suggested, countries vehemently rejected the idea, and subsequently, their positions became more nuanced due to new threats.

UN Security Council Resolution 1373, adopted on 28 September 2001 following the attacks of 11 September 2001, referred specifically to the terrorist phenomenon, establishing a new mandate for Member States to prevent and counter terrorist attacks.

The transition from the notion of terrorism to that of violent extremism has paved the way for the employment of a wider set of actors and tools. This agenda was adopted by the George W. Bush administration in 2005, when it recognized the limits of the "Global War On Terror" (GWOT) and reoriented itself to the "Struggle against Violent Extremism" (SAVE).

As a reference point for addressing this phenomenon, in 2006, at the level of the United Nations, the global strategy against terrorism is conceived, as a useful, programmatic tool to fight against this scourge. According to it, four important pillars were the cornerstone of the anti- terrorist threat approach[4]:

- Identifying and solving the causes, conditions that led to the emergence and proliferation of the terrorist phenomenon;
- Preventing and combating the terrorist phenomenon, through concrete counter-operations;
- Building the capacity of States to respond to such threats, while strengthening the role of the United Nations in this regard;
- Taking the necessary measures to respect human rights as a fundamental element in the fight against terrorism.

In this strengthened framework, in response to the direct threats posed by UN peacekeeping operations, a new initiative took place in 2013, when the Security Council decided to set up a Force Intervention Brigade for the Congolese UN mission. The force was set as a benchmark at the time in the UN operations, with the mandate of "conducting operations with a precise target, on neutralizing armed groups"[5].

At the same time, other types of capabilities are implemented and exploited in peacekeeping missions: surveillance drones (South Sudan, Congo, Ivory Coast, Mali), communication tools as a solution to counter the online recruitment procedures used by terrorist groups (Somalia), intelligence activities in the fight against Islamist rebel actions (Libya).

The MINUSMA mission established in Mali in 2013, however, marked the beginning of a paradigm shift by the international community in the fight against terrorism. MINUSMA was the first peacekeeping mission to operate in parallel with a regional counterterrorism initiative led by France (Operation Serval renamed Barkhane).

The terrorist groups that emerged at the time, IS (Islamic State), Al-Qaeda in the Islamic Maghreb (AQIM), Al Mourabitoune, Ansar Eddine and affiliated groups, such as the "Front de Libération du Macina" (FLM), did not seek international recognition but the establishment of areas in the region with an Islamist-jihadist character, the basis of Islamic fundamentalism and radicalization. To this end, modern communication tools are used to recruit supporters and raise awareness of their atrocities on a global scale.

Large number of casualties (due to violent malicious acts) among UN staff in this mission, since its establishment (2013) until 2017 (91 deaths)[6], determined a new approach of the organization to

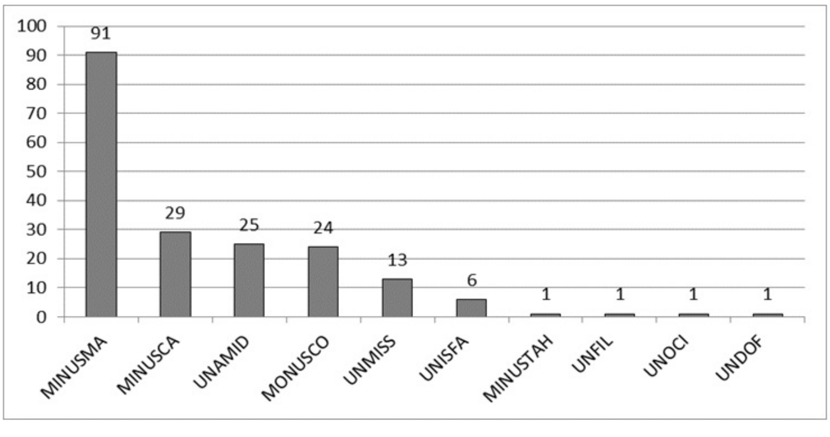

Figure 1 *Number of fatalities,due to violent malicious acts, in peacekeeping missions during the period 2013-2017*

Source: author's calculations based on DPKO data, https://peacekeeping.un.org/sites/default/files/stats_by_mission_incident_type_4_55.pdf the terrorist phenomenon, in relation to the global strategy of 2006.

Thus, ten years after the implementation of the global strategy against terrorism, in 2016, through the ”Action Plan on Preventing Violent Extremism”[7] Secretary-General Ban Ki-moon indicated a strong UN stance on the threat, with a direct impact on other UN missions in Libya, Somalia, Syria and Yemen.

The Action Plan on the Prevention of Violent Extremism states: ”The current Action Plan [...] considers and addresses violent extremism when appears and leads to terrorism”[8]. Extremism is a phenomenon which no region, nationality or system have been spared from. In recent years, terrorist groups, such as ISIL, Al Qaeda and Boko Haram, have given multiple, violent forms to extremist actions, thus determining the need to counter these threats with new methods. The religious ideology propagated by these groups was made under the sign of intolerance and with dramatic consequences in many parts of the world.

However, even with these new strategic documents, the organization is not yet ready to add counterterrorism operations to its range of instruments in support of available peace.

The High-level Independent Panel on Peace Operations, established in 2014 at the initiative of the then Secretary-General of the United Nations, for the purpose of an in-depth review of United Nations peace operations, endorsed the conclusions that ”UN troops should not undertake military operations to combat terrorist acts”[9].

There are several actors in conflict areas, given the presence of both non-state actors (rebel groups, militias, tribes, etc.) and international, regional and NGO organizations. Threats represent, for the various security structures, any factors (actions, capabilities, intentions or plans) that may affect peace missions.

Given the security structures of international organizations, present in conflict zones to fulfill a given mandate, vulnerabilities can be considered consequences of systemic dysfunctions or deficiencies, which can be exploited or can contribute to the materialization of threats.

International organizations, through their peace implementation strategies are forced to take part, even from a non-violent position, in the ongoing conflicts, to interact with members of different groups, to persuade them to participate in various negotiations, to adopt, at a declarative level, positions on various issues that are not to the liking of all combatants, etc. The impartiality of these organizations and the peaceful nature of the activities carried out are defining elements for the fulfillment of the entrusted mandate.

Upon the emergence of anarchy, various rival groups want to arm themselves as soon as possible to defend themselves but also to gain supremacy over rivals. Thus, innocent citizens fall victim to intrastate clashes, and are forced to either end up in refugee camps (for example, in Darfur in 2015 there were 4,000,000 homeless people grouped in camps specially set up by humanitarian organizations – IDPs: internally displaced persons) or to follow migratory routes in search of a better living conditions.

Thus, peace operations that take place in an environment characterized by terrorist threats and violent extremism and are not perceived as impartial can lead to the emergence of risk to our own personnel, vulnerable to such threats. Over a longer period of time, it risks marginalizing and politicizing the agendas of humanitarian non-governmental agencies and organizations, as well as the mandate of the peace mission.

Conclusions

I consider that UN peace operations should be strengthened to prevent terrorist threats when necessary, and that the task of counteracting and neutralizing these threats remains the responsibility of multinational coalitions and regional initiatives mandated by the UN Security Council.

The organization’s core documents, including the new counter-terrorism plan mentioned above, have failed to significantly reduce the effects of these threats on peacekeeping missions and operations. Even in the MINUSMA mission in Mali, the latest data show a number of 134 casualties[10] among UN employees, which indicates a continuous increase in terrorist attacks and actions in the area, targeting the organization’s staff.

Responsibility for the security of members of UN missions and the organization’s facilities lies with the host country. Cooperation in this regard between the representatives of the UN mission and those of the politico-military leadership structures of the respective state must take place on several levels in order to create a stable security climate for those who risk their lives in order to bring peace to the area.

The first level of cooperation is that of effective communication at the level of ministries and structures with clear tasks regarding the presence of the United Nations in the area: the Ministry of Foreign Affairs, police structures, various government security and intelligence services.

It is very important to create a clear, precise mechanism for the exchange of data to be used by the relevant structures within the UN mission in order to obtain relevant risk analyses for UN staff and senior officials.

The second level of cooperation between UN structures and the host country is the establishment of communication strategies aimed in particular at the people necessary for a good understanding of the mission's mandate, the objectives pursued, and the steps required to achieve them.

The third level aims to achieve cooperation in crisis situations, when functional cells must be activated in order to solve such situations. They would be composed of representatives of the military, police and security structures within the UN mission, and government authorities, who would respond effectively to the threats.

To this end, security structures, in cooperation with the line ministries of the host country, must identify risk mitigation solutions and strategies to the exposed personnel of international organization.

The evolution of science and technology has led to new dimensions of the range of risks and threats: unmanned aerial vehicles, generically called "drones", which can be controlled by remote control and satellite links or even via mobile phones, improvised explosive devices, made with material purchased from the online environment, modern means of communication that can intercept radio signals, etc.

At the same time, the following should also be considered threats to the general security of contemporary society: internal developments within each society, especially those in collapse, as well as geopolitical trends such as: the persistence of crimes related to arms trafficking, drugs, cross-border smuggling, the security environment generated by the transition period and relative economic instability, the insufficiency of allocated resources, the sometimes feeble reaction of state institutions.

In the context of globalization, amplification and diversification of the terrorist phenomenon, through followers who show extreme fanaticism (direct attacks with small arms, raid/guerrilla attack, indirect attacks with grenade launchers, suicide attacks with explosive vests, hostage-taking, kidnappings, executions), realistic threat assessment, increasing security through modern technical means, implementation of effective detection, deterrence and prevention tactics are basic coordinates in terms of the concept of security of peace operations and missions.

NOTES:

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ASSESSMENT METHODOLOGY OF THE LEVEL OF TRAINING OF JOINT TACTICAL GROUPS OF SHIPS

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An analysis of military conflicts of the last decades indicates the widespread and comprehensive use of hybrid methods of threats, concealed, indirect (veiled) use of regular troops. Under such conditions, the use of armed forces with other components of the defence forces is indisputable. The new approach to state defence is based on the main categories that affect the development of the use of state defence forces, namely, time, space, reason. Under such conditions, there is a need to make changes in the system of combat training, which will ensure the appropriate level of training of forces (troops) of the Armed Forces and other military formations, acquisition of capabilities to jointly perform tasks as part of joint defence forces. Acquisition of capabilities to jointly perform the tasks by ships the Naval Forces and the Maritime Security Service of the State Border Service has certain features in terms of combat training and deserves attention from military science and requires a separate study.

Keywords: effectiveness of combat training; assessment methodology; level of training; joint tactical groups of ships.

The experience of modern military conflicts indicates the wide and comprehensive use of information, cybernetic, economic, political, diplomatic, legal and illegal measures and methods with limited use of military means. New trends of combat activities at sea have been identified, namely: isolation of the combat area from the sea, fight against quasi-state flotillas, fight against piracy in all its forms, restoration of maritime border control in conditions of non-recognition by the aggressor, opposing to non-military measures and indirect enemy actions.

An analysis of trends in the nature of military conflicts makes it possible to assert that today the aggressor state uses private military companies or regular military formations without insignia. The task of such armed groups is to reduce the military potential of the state in peacetime before the war. The results of such actions can have unpredictable consequences: the loss of Navy bases, the destruction of the logistics system, the loss of ships making up the Navy's combat core, and even the loss of trained human resources. In such conditions, the level of performing the tasks by Naval Forces is significantly reduced, and the successful performing of tasks requires joint efforts with the Maritime Security Service of the State Border Service. A vivid example of this is the armed aggression by the Russian Federation (RF) against Ukraine, the temporary occupation of the Autonomous Republic of Crimea (AR Crimea), and the city of Sevastopol[1].

The leading countries of the world also pay attention to the use of joint (interagency) formations. Thus, the United States in the new strategy of the Army – 2028 determined the creation in 2020 of the Security Force Assistance Brigades and the Security Force Assistance Command and will continue the practical examination of the experimental unit Multi Domain Task Force[2]. These supposed to help to work out the optimal structure and concept for effective use of US Army in future.

Countries that have strong enough navies also resort to joint (interagency) formations. The events of November 2018 in the Kerch Strait confirm this. In order to prevent the peaceful transit of the group of Ukrainian Navy boats and afterward to detain them illegally the Russian Federation resorted to the use of forces and means of the Black Sea Fleet and the Coast Guard of the Border Service of the Russian Federation.

Considering the exclusive responsibility of the Navy in protecting national interests in the maritime operational area, as well as expanding the range of tasks, it is undeniable that the Naval Forces can and should act jointly with the Maritime Security Service of the State Border Service.

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For their effective use, it is necessary to unite the ships of the Navy and Maritime Security Service of the State Border Service in tactical groups, which in form and methods of application will meet the tasks assigned to them and will be ready to act both independently and as part of joint (interagency) groups.

Taking into account everything mentioned above, the joint tactical group of ships is the temporary formation created from ships (boats) of the defence forces, for the joint implementation of the tactical task under a unified command. The quality of tasks performed by a joint tactical group of ships (group) directly depends on the effectiveness of the combat training, one of the important indicators of which being the level of training.

The imperfection of the existing methodological approaches to assessing the level of training of the groups in peacetime and the impossibility of their full use to assess the effectiveness of combat training induce the need for improvement of scientific and methodological apparatus and justification of the proposed changes.

This requires a scientific justification of a comprehensive methodology for assessing the level of training of joint tactical groups of ships and indicates the relevance of the topic.

To determine the level of training of the group $N_{T_G}(t)$, it is proposed to use the following methodology.

It is proposed to assess the level of training of the group $N_{T_G}(t)$ by an indicator, the value of which determines the level of knowledge of military personnel and their ability to perform the tasks in the group.

The indicators that characterize the level of training of the group are proposed to include: the integral level of individual capabilities (IC) of military personnel of the group command (GC), which is responsible for the implementation of the group and the level of coherence of the group.

Given that the IC of military personnel of the GC affect the coherence of the group, indicates a high correlation of indicators. Under the following conditions, it is proposed to calculate the level of training of the group $N_{T_G}(t)$ at the *t* moment of time by means of normalized multiplicative aggregation[3]:

$$N_{T_G}(t) = Z_{IC_{GC}}(t)^{q_{IC_{GC}}} \cdot Z_{C_G}(t)^{q_{C_G}},$$

where $Z_{IC_{GC}}(t)$ – the integral level of IC of military personnel of the GC at the *t* moment of time; $Z_{IC_{GC}}(t)$ – the level of coherence of the group at the *t* moment of time; $q_{IC_{GC}}$, q_{C_G} – the "weight" coefficients of indicators $Z_{IC_{GC}}(t)$ and $Z_{C_G}(t)$. Calculation of the "weight" coefficients is carried out by the method of expert evaluation[4]. Each of the indicators consists of a set of indicators of the lower level of the hierarchy, which characterize and reveal their physical content.

It is proposed to calculate the integral level of IC of military personnel of the GC $Z_{IC_{GC}}(t)$ with indicators that take into account the integral level of IC *j-th* category of military personnel of the GC:

- the category of group commander who directly decides on the training and implementation of the group;
- the category of staff officers who develop planning documents for the training and implementation of the group, combat orders, annexes to them, etc.

The integral level of IC of military personnel of the GC $Z_{IC_{GC}}(t)$ will depend on the indicator of the level of IC of each of the categories. It should be noted that the level of IC of certain categories of military personnel of the GC does not depend on each other.

Under the following conditions, the integral level of IC of military personnel of the GC is proposed to be calculated using additive aggregation:

$$Z_{IC_{GC}}(t) = \sum_{j=1}^{J} C_{ICj}(t)^{q_j},$$

where, $C_{ICj}(t)$ – the level of IC *j-th* category of military personnel of the GC at the *t* moment of time; q_j – the ”weight” coefficients of indicators $C_{ICj}(t)$. Calculation of ”weight” coefficients is carried out by the method of expert evaluation.

The level of IC *j-th* category of military personnel of the GC depends on the level of IC every *i-th* serviceman of the category and does not depend on each other, so their performance does not affect each other. Under the following conditions, in order to calculate the level of IC *j-th* category of military personnel of the GC $C_{ICj}(t)$ at the *t* moment of time we will use the next formula:

$$C_{ICj}(t) = \frac{\sum_{i=1}^{I} X_{ICj_i}}{I}(t),$$

where $X_{ICj_i}(t)$ – the level of IC of the *i-th* serviceman *j-th* category of military personnel of the GC the *t* moment of time; I – the quantity of servicemen in *j-th* category of military personnel of the GC at the *t* moment of time.

The assessment of $X_{ICj_i}(t)$ level of IC of the *i-th* serviceman *j-th* category of military personnel of the GC is determined by indicators that characterize the level of education of the *i-th* serviceman in *n-ths* main subjects of education, by the next formula:

$$X_{ICj_i}(t) = \frac{\sum_{b=1}^{B} M_b}{B}(t),$$

where $M_b(t)$ – the level of education of the *i-th* serviceman in *b-th* subject of education at the *t* moment of time; B – the quantity of the main subjects of education at the *t* moment of time.

The assessment of $M_b(t)$ is proposed to determine with indicators that characterize the level of theoretical knowledge and practical skills of the servicemen in *b-ths* main subjects of education.

Due to the fact that knowledge and skills are not dependent on each other, and therefore their indicators are not dependent, it is proposed to use additive aggregation[5] to assess the level of education of the *i-th* serviceman in the *b-th* subject of study.

$$M_b(t) = \sum_{b=1}^{B} L_{bi}(t) \cdot q_b,$$

where $L_{bi}(t)$ – the level of education of the *i-th* serviceman: ”theoretical knowledge” $L_{zi}(t)$, ”practical skills” $L_{ui}(t)$; q_b – the – weight” coefficients of indicators $L_{bi}(t)$.

Calculation of the ”weight” coefficients q_b is carried out by the method of expert evaluation.

The indicator that characterizes the level of the theoretical knowledge of the *i-th* serviceman $L_{zi}(t)$ is proposed to be calculated based on the results of theoretical questions (testing) in the *b-th* main subject of study. The total number of questions should provide an objective and comprehensive assessment of the level of theoretical knowledge of the serviceman.

The assessment of the theoretical knowledge the theoretical knowledge $L_{zi}(t)$ of the *i-th* serviceman is calculated by formula:

$$L_{zi}(t) = \frac{U_{fi}(t)}{U_{ti}(t)},$$

where $U_{fi}(t)$ – the quantity of correct answers given by *i-th* serviceman; $U_{ti}(t)$ – the total quantity of the theoretical questions.

The indicator that characterizes the level of practical skills of the *i-th* serviceman $l_{fi}(t)$ $L_{ui}(t)$ is calculated based on the results of practical tasks performed by him. The content and number of tasks should take into account the functional purpose of the serviceman in accordance with the position held.

The assessment of the level of practical skills $L_{ui}(t)$ is done by formula:

$$L_{zi}\left(t\right)=\frac{U_{fi}\left(t\right)}{U_{ti}\left(t\right)},$$

where $U_{fi}(t)$ – the quantity of tasks performed by the i-th serviceman correctly; $U_{ti}(t)$ – the total quantity of tasks that were given to the *i-th* serviceman.

The level of coherence of the group $Z_{C_G}(t)$ is proposed to be calculated by indicators that take into account the level of coherence of the GC and the level of training of the ships to jointly perform tasks in the group. It should be noted that the indicators that determine the level of coherence of the group do not affect each other. Under such conditions, the level of coherence of the group is proposed to be calculated using additive aggregation:

$$Z_{C_G}\left(t\right)=C_{C_{GC}}q_{C_{GC}}+C_{T_{JPT}}q_{T_{JPT}},$$

where $C_{C_{GC}}(t)$ – the indicator that expresses ”the level of coherence of the GC”; $C_{T_{JPT}}(t)$ – the indicator that expresses ”the level of training of the ships to jointly perform tasks in the group”; $q_{C_{GC}}$, $q_{T_{JPT}}$ – the ”weight” coefficients of the indicators.

The numerical value of the indicator $C_{C_{GC}}(t)$ is proposed to be calculated based on the results of performance of collective training standards by the GC.

Therefore, the assessment of the level of coherence of the GC is done by formula:

$$C_{C_{GC}}\left(t\right)=\frac{\sum_{k=1}^{K}X_k\left(t\right)}{5\cdot K};\quad X_k\left(t\right)=\overline{2,5},$$

where $X_k(t)$ – the grade of the GC in *k-th* collective training standard at the *t* moment of time;

K – the quantity of the collective training standards in accordance with the plan of training.

Each collective training standard consists of the sections that characterize the capability of the GC to perform certain tasks. It is proposed to assess $X_k(t)$ based on the grades for every section of the collective training standard by the following formula:

$$X_k\left(t\right)=\frac{\sum_{l=1}^{L}M_{CTS_L}\left(t\right)}{L};\quad M_{CTS_L}=\overline{2,5},$$

Where $M_{CTS_L}(t)$ – the grade of the results of performance by the unit of the *L-th* section of the collective training standard at the *t* moment of time; L – the quantity of sections of the collective training standard $X_k(t)$ is assessed:

$$X_k = \begin{cases} excellent, \; if \; \dfrac{\sum_{l=1}^{L} M_{CTS_L}(t)}{L} \geq 4,5; \; M_{CTS_L} \geq 4; \\ good, \; if \; \dfrac{\sum_{l=1}^{L} M_{CTS_L}(t)}{L} \geq 3,5; \; M_{CTS_L} \geq 3; \\ satisfactory, \; if \; \dfrac{\sum_{L=1}^{L} M_{CTS_L}(t)}{L} < 3,5; \; M_{CTS_L} \geq 3; \\ unsatisfactory, \; if \; M_{CTS_L}(t) = 2. \end{cases}$$

In turn, the sections of the collective training standard consist of elements that must be performed by the unit. The calculation of the grade of the results of performance by the unit of the *L-th* section of the collective training standard is proposed to do by the following formula:

$$M_{CTS_L}(t) = \left(\frac{x+y}{x^* + y^*} \right) \cdot z_x \quad ; \quad z_x = \begin{cases} 1, \; x = x^*; \\ 0, \; x < x^*, \end{cases}$$

where x – the number of critical elements performed; x^* – the total number of critical elements; y – the number of other elements performed; y^* – the total number of other elements; z_x – the index of validity of the final result for critical elements (condition of mandatory full implementation).

The section of the collective training standard is graded:

$$M_{CTS_L} = \begin{cases} excellent, \; if \; M_{CTS_L}(t) \geq 0,8; \\ good, \; if \; 0,7 \leq M_{CTS_L}(t) < 0,8; \\ satisfactory, \; if \; 0,6 \leq M_{CTS_L}(t) < 0,7; \\ unsatisfactory, \; if \; M_{CTS_L}(t) < 0,6. \end{cases}$$

The numerical value of the indicator of the level of training of ships to perform jointly the tasks within the tactical group, $C_{T_{JPT}}(t)$, is proposed to calculate based on the results of performance of joint exercises and joint gunnery exercises.

Therefore, the assessment of the level of training of ships to jointly perform tasks in the group is calculated using additive aggregation:

$$C_{T_{JPT}}(t) = X_{je} \cdot q_{je} + X_{jge} \cdot q_{jge}$$

where $X_{je}(t)$ – the indicator that characterizes the level of joint exercises performance by ships in the group at the t moment of time; $X_{jge}(t)$ – the indicator that characterizes the level of joint gunnery exercises performance by ships in the group at the t moment of time; q_{je}, q_{jge} – the ”weight” coefficients of the indicators.

The numerical value of the indicator $X_{je}(t)$ that characterizes the level of joint exercises performance by ships in the group, is calculated based on the results of the *v-ths* joint exercises specified in the training plan with formula:

$$X_{je}(t) = \frac{\sum_{v=1}^{V} M_{je_V}(t)}{V}; \quad M_{B_V} = \overline{0,1},$$

where $M_{je_V}(t)$ – the level of performance *v-th* joint exercise by ships in the group at the *t* moment of time; V – the quantity of joint exercises. The joint exercise is graded:

$$M_{je_V}(t)=\begin{cases}1,\text{“accomplished”},\left(\begin{array}{c}\text{if the exercise is completely accomplished in proper time,}\\ \text{and the order of its accomplishment was in accordance with}\\ \text{tactical publications without critical divergences;}\end{array}\right)\\ 0,\text{“not accomplished”}, \text{if performed not in accordance with exercise requirements.}\end{cases}$$

The numerical value of the indicator $X_{jge}(t)$ that characterizes the level of joint gunnery exercises performance by ships in the group is proposed to calculate based on the results of joint gunnery exercises performance[6].

By formula:

$$X_{jge}(t)=\frac{\sum_{s=1}^{S}M_{jge_S}(t)}{5\cdot S};\quad M_{jge_S}=\overline{2,5},$$

where $M_{jge_S}(t)$ – the indicator that characterizes the grade of the *s-ths* joint gunnery exercises performance at the t moment of time; S – the quantity of the joint gunnery exercises that are planned in accordance with the training plan. The value $M_{jge_S}(t)$ of the joint gunnery exercise is determined by tactical, fire and technical indicators and calculated by formula:

$$M_{C_S}(t)=\frac{L_T+L_F+L_W}{3},\quad L_T;L_F;L_W=\overline{2,5},$$

where $L_T(t)$ – the value of the tactical indicator at the t moment of time; $L_F(t)$ – the value of the firing indicator at the t moment of time; $L_W(t)$ – the value of the technical indicator at the t moment of time.

The joint gunnery exercise is graded:

$$M_{C_S}=\begin{cases}\text{excellent}, \text{ if } \dfrac{L_T+L_F+L_W}{3}\geq 4,76;\\ \text{good}, \text{ if } 3,8\leq\dfrac{L_T+L_F+L_W}{3}<4,76;\\ \text{satisfactory}, \text{ if } 2,8\leq\dfrac{L_T+L_F+L_W}{3}<3,8;\\ \text{unsatisfactory}, \text{ if } \dfrac{L_T+L_F+L_W}{3}<2,8.\end{cases}$$

The assessment of the tactical indicator $L_T(t)$ during the firing is determined in accordance with the decisions made by the commander of the group to solve the tactical task, which ensured the success of the battle in a certain time (reduced the effectiveness of the enemy), and calculated by the formula:

$$L_T(t)=5+\sum_{p=1}^{P}K_p,$$

where K_P – coefficient of reduction of the value of a tactical indicator of joint firing for an error made during solving of a tactical task, according to the table[7].

The assessment of the firing indicator $L_F(t)$ is determined by assessing the success of the firing of each *a-th* ship of the group separately, summarized in the overall assessment and calculated by the formula:

$$L_F(t)=\frac{\sum_{a=1}^{A}U_{Fa}(t)}{A};\quad U_{Fa}=\overline{2,5},$$

where U_{Fa} – an indicator that characterizes the assessment of the success of firing of each *a-th* ship of the group at the t moment of time; A – the quantity of the ships in the group.

The firing indicator is graded:

$$L_F = \begin{cases} excellent, & if \ L_F(t) \geq 4,5; \ L_F \geq 4; \\ good, & if \ L_F(t) \geq 3,5; \ L_F \geq 3; \\ satisfactory, & if \ L_F(t) \geq 2,75; \ L_F \geq 2; \\ unsatisfactory, & if \ L_F(t) < 2,75; L_F \geq 2. \end{cases}$$

The assessment of the success of the firing of each *a-th* ship of the group, $U_{Fa}(t)$, is determined by five firing indicators and calculated:

$$U_{Fa}(t) = \frac{\sum_{g=1}^{G} G}{5}; \qquad G = \overline{2,5},$$

where G_1 – the value of the first firing indicator, time of completion of preparation of group for joint firing; G_2 – the value of the second firing indicator, the value of firing of the *a-th* ship of the group; G_3 – the value of the third firing indicator, the time for the trial firing; G_4 – the value of the fourth firing indicator, the success of the firing; G_5 – the value of the fifth firing indicator, the *firing rate*.

The assessment of the first firing indicator G_1, time of completion of preparation of group for joint firing is determined by the ratio of the *standard time* to prepare for firing to the factual spent time of preparation for firing and is calculated by the formula:

$$G_1 = \frac{T_\alpha}{T_\beta}$$

where T_α – the *standard time* to prepare for firing; T_β – the factual spent time of preparation for firing.

The first firing indicator is graded:

$$G_1 = \begin{cases} excellent, & if \ G_C(t) \geq 1,0; \\ good, & if \ 0,9 \leq G_C(t) < 1,0; \\ satisfactory, & if \ 0,85 \leq G_C(t) < 0,9; \\ unsatisfactory, & if \ G_C(t) < 0,85. \end{cases}$$

T_α – the *standard time* to prepare for firing is determined by the maximum time of preparation of a single ship and increased by 20 seconds;

T_β – the factual spent time of preparation for firing is the time from the moment of *target data designation* from the command ship (flagship) to the moment of the trial firing.

The assessment of the second firing indicator, G_2, the value of firing of the *a-th* ship of the group is evaluated for every ship separately. The overall value of the second firing indicator in joint firing is determined by the worst value of firing in the group.

The assessment of the second firing indicator is determined by the lowest of the values of the accuracy of training in range and direction:

- when firing at a rate of fire < 30 shots/min. by the deviation of the first shot (when firing on one sight), the middle volley of the first turn (when firing turns on three sights);
- when firing at a rate of fire ≥ 30 shots/min. by the average deviation of the first turn;
- when firing complexes with unguided missiles by the average deviation of the first turn.

The value is determined according to the table of acceptable values of deviations in the transfer of fire from the auxiliary target for ships[8].

The assessment of the third firing indicator, G_3, the time for the trial firing of the group is determined by the ratio of the *standard time* for trial firing to the factual spent time for trial firing and is calculated by the formula:

$$G_3 = \frac{T_\lambda}{T_\varphi}$$

where T_λ – the *standard time* for trial firing; T_φ – factual spent time for trial firing, is calculated from the moment of time of the first trial volley to the moment of time of the first disabling volley.

The third firing indicator is graded:

$$G_3 = \begin{cases} excellent, \; if \; G_p(t) \geq 1,0; \\ good, \; if \; 0,85 \leq G_p(t) < 1,0; \\ satisfactory, \; if \; 0,7 \leq G_p(t) < 0,85; \\ unsatisfactory, \; if \; G_p(t) < 0,7. \end{cases}$$

The value of the *standard time* for trial firing, T_λ , is calculated by formula:

$$T_\lambda = K_\lambda \left(t_n + \tau + t_g\right),$$

where K_λ – the coefficient, depending on the method of trial firing, is determined by the table[9]; t_n – time of flight of a trial volley; τ – interval of silence, for optical 10s and technical observations 15s; t_g – time of performance of all trial volleys.

Time of performance of all trial volleys is calculated by formula:

$$t_g = d(n-1) + t_\omega,$$

where d – the standard time between adjacent trial volleys of the ship, s; n – the number of trial volleys of one ship; t_ω – the period of time between the first trial volley of the first and last ship in the order of execution of the firing, s.

The assessment of the fourth firing indicator, G_4, the success of the firing determined by comparing the number of impacts to firing with the mathematical number of the predicted number of impacts according to the diagram[10].

The assessment of the fifth firing indicator, G_5, the *firing rate* is measured by gaps and is calculated based on the percentage of the number of gaps to the total number of shots fired.

If there were no gaps when firing, the fifth firing indicator, G_5, is evaluated 5 points "excellent", if not more than 10% of the ordnance payload is used – 4 points "good", not more than 25% – 3 points "satisfactory", more than 25% – "unsatisfactory".

The assessment of the technical indicator $L_W(t)$ of joint firings of the group is calculated as integral level of technical indicators of the ships of the group, by formula:

$$L_W(t) \frac{\sum_{n=1}^{N} U_n(t)}{N}; \quad U_n(t) = \overline{2,5},$$

where $U_n(t)$ – the value of the technical indicator of the ship of the group at the t moment of time; N– quantity of ships.

The value of the technical indicator $U_n(t)$ of the *n-th* ship of the group is calculated as the average grade of all combat departments of the ship rounded to an integer, by formula:

$$U_n(t) \frac{\sum_{h=1}^{H} G_h(t)}{H}; \quad G_h(t) = \overline{2,5},$$

where $G_h(t)$ – the value of the technical indicator of the *n-th* ship at the *t* moment of time; *H* – the quantity of combat departments of the ship that are being evaluated.

The technical indicator of combat departments of the ship $G_h(t)$ is assessed from the beginning of the tactical task to the end of joint firing. If during the assessment there were no breakdowns and failures associated with not properly prepared weapons and military equipment and erroneous actions of personnel, it is considered that all combat departments and services provided joint firing and the technical indicator of combat departments $G_h(t)$ is rated an ”excellent” (5 points). If in the process of tactical task and firing there were failures, breakdowns associated with not properly prepared weapons and military equipment or incorrect actions of personnel, the technical indicator of combat departments of the ship is calculated by the formula:

$$G_h(t) = 5 + \sum_{o=1}^{O} K_o,$$

where K_0 – the coefficient of reduction of the grade of the technical indicator of combat departments of the ship according the table[11].

Conclusions

The improved assessment methodology of the level of training of joint tactical groups of ships establishes the procedure for determining of the indicator of the level of training of the group, which, unlike the existing ones, takes into account the level of coherence of the group.

The level of coherence of the group envisages a combination of indicators of the level of coherence of the GC, which is calculated based on the results of their performance of collective training standards and the level of training of the ships of Naval Forces and Maritime Security Service of the State Border Service to jointly perform tasks in the group, which in term, is calculated based on the results of performance of joint exercises and joint gunnery exercises.

The proposed improved assessment methodology of the level of training of joint tactical groups of ships is an integral part of assessing the level of ability of the joint tactical group of ships to perform the tasks assigned to them.

In view of the above, a set of indicators for a comprehensive methodology for assessing the effectiveness of combat training of a joint ship tactical group, which differs from the known one, was further developed by introducing an indicator of the ability of a joint tactical group of ships to perform tasks as assigned.

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5 E. Wentzel, *Operations Research*, ”Soviet Radio”, Moscow, 1972, p. 157.

6 Normative document, *Regulations artillery service of the navy*, Military publishing ministries of defence of the USSR, Moscow, 1972, p. 179.

7 *Ibidem*, p. 135.

8 *Ibidem*, pp. 140-141.

9 *Ibidem*, p. 143.

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11 *Ibidem*, p. 185.

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WAYS TO IMPROVE CAMPAIGN SERVICES IN ORDER TO MOTIVATE HUMAN RESOURCES WITHIN A MECHANIZED BRIGADE

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The participation of the Romanian military in missions in the theaters of international operations represented a new national operational effort implied by Romania's accession to NATO. The necessary logistical support is provided to contingents participating in missions in accordance with the functional areas of logistics (supply, field services, lifecycle support of materials and equipment, movement and transport, maintenance of equipment and related areas). Campaign services are a key area in terms of motivating human resources, as they cover the primary needs of each military participant in the operation. The art of motivating members of an organization for its common goals or in other words the ability to make other people work with you and for you is crucial to success and is, without a doubt, one of the main areas of responsibility of managers. Military commanders are constantly concerned with identifying and implementing modern measures to modernize field services so that the combatant has that motivating physical and mental comfort to support him/her in accomplishing the mission.

Keywords: campaign services; motivation; human resource; mechanized brigade.

In modern warfare, fighting no longer takes place according to some patterns or rules established and imposed by virtue of previous experience. They now take the form of scenarios tailored to each situation. Few elements, modalities and procedures of past experience are still used, the new concept of strategic and operational planning offers sufficient freedom in designing actions, high chances of success having those options that best integrate the means and resources available.

The current armed conflict is characterized by great dynamics, spatiality, mobility and the employment of strong and diversified forces, means and military systems, both in the direct confrontation and in the process of managing the campaign services. These elements require from the logistics forces a good state of operability and a high availability to ensure the logistical support of the fighting forces.

The measures taken for the modernization of the Romanian Armed Forces were generated both by the internal need regarding the functioning of the military structures, and by that of the rapid adaptation to the requirements of the modern armed conflict.

Ensuring the fulfillment of a mission/ operation is achieved through the joint action of the following main factors: information, military and combat technique. These elements are the essence of defining the logistics, their efficiency being necessary by permanently ensuring what is needed for the deployed troops. Therefore, in order for the military to be able to move and fight, he/she needs to be provided with basic necessities (food, equipment, rest conditions, maintenance materials), and military equipment (including armaments) must be filled with fuel and ammunition, as well as provided spare parts, technical assistance and means of protection.

In this material I will present aspects of the campaign services that I consider to be essential and that need to be analyzed and improved in order to motivate the human resource within a mechanized brigade.

Campaign services

One of the objects of activity of consumer / operational logistics, component of the logistics of the Romanian army, is represented by the execution of missions in the functional field of logistics: campaign services.

The provision of field services represents the totality of the actions undertaken in order to execute ”mainly, the following logistical services: turnaround, feeding and bathing, washing laundry and cleaning equipment, disinfection, rodent control, selective waste collection, waste disposal

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and household waste, funerals for civilian and military personnel”[1] with the efficient use of specific resources. From the definition it can be seen that the campaign services include basic services, those that the military cannot give up (carding, equipment) and are intended to meet primary needs (rest, food, etc.).

Campaign services must be provided both for the own forces participating in the operation and for the refugee personnel and prisoners of war in the area of logistical responsibility.

At the level of the mechanized brigade, the campaign services are planned based on the Logistic Support Order / annex – logistic support to the Operations Order / OPORD of the division and are executed by the logistic battalion together with the other specialized logistic support units/ subunits, based on the commander’s decision.[2]

Studying and analyzing the main provisions in the field, I can say that the provision of campaign services represents the actions undertaken by the management structures of the mechanized brigade to identify and distribute the tasks specific to each type of campaign service to the logistical structures so that their activities support more efficiently successfully fulfilling the missions of a mechanized brigade-type entity in operation.

The logistical support structures within the mechanized brigade participate in the successful fulfillment of the missions entrusted to the fighting forces by providing syncope and efficient campaign services.

Military specialists have tried to create a hierarchy of field services, but the experience gained over time in international operations conducted by Romanian military soldiers has shown that each has a unique importance in maintaining high morale of troops and from the point views of importance cannot be ranked.

I consider it relevant for my approach to briefly present the way in which the campaign services are provided during the different types of operations.

For *stability operations and support operations* if initially the field services are provided by the specialized military structures, later, these are provided by civilian contractors or through Host Nation Support. During the conduct of these types of operations, requests for logistical support may arise at a joint level.

In operations carried out outside the national territory, led by NATO, the campaign services can be provided both by own forces and with multinational support. Multinational support can be provided through the Support of the Host Nation, the leading nation, through cooperation agreements between the participating nations or through the nation with a specialized role.

In mechanized brigade *defence operations*, routine field service activities are performed during low visibility periods or at night. The specific logistics structures are arranged in the area of operations, outside the flight corridors of the enemy aviation, as far back as possible, but at a distance to ensure the support of the maneuvering units. In order to reduce the detection vulnerability, every 72 hours, it is necessary to move the structures that provide campaign services. Within this type of operations, it is strictly necessary to collaborate with the engineering structures in order to arrange the locations of the structures for the provision of campaign services.

Campaign services in *offensive operations* are performed in hidden and / or not hidden locations and are performed based on the anticipated needs of each subordinate entity and will be materialized in the maneuvering scheme of the mechanized brigade. During this type of operation, all campaign services, except for funeral services, are temporarily suspended until the operation is completed.

For a better understanding of the field, I will further present some theoretical aspects of providing campaign services.

Troop quartering consists of all measures and actions performed in order to ensure troop camping, provide specific constructions and installations, operation, maintenance and repair of buildings and installations, to accommodate personnel in buildings, tents, shelters, special vehicles, etc.

The logistic management bodies of the mechanized brigade organize the troop quartering according to the received mission, the place in the operative (combat) device, the time established for stationing and the reconnaissance possibilities, in accordance with the legislation in force.

The troop quartering is carried out using the existing buildings in the area, regardless of the owner, but it will be taken into account that the owners, individuals, will be provided with the separate space strictly necessary for living, food and hygiene.

During the state of mobilization, siege, emergency or war, the owners of the buildings are obliged by law to make them available to the military, free of charge, when they or the local public administration authorities request them, regardless of the duration requested.

During ”mobilization exercises” and ”concentrations”, renting or accommodation in privately owned buildings entitles the landlord to collect a rent in accordance with legal provisions.

Reconnaissance groups are formed for the troop quartering. The composition of a reconnaissance group is in principle the following: the head of the logistic structure of the large unit who is also the head of the reconnaissance group, a representative from each subunit, a representative of the territorial military construction body or a representative of the garrison accommodation body, as well as the representative of the local public administration.

Studying and analyzing the legislation in force in the field, we identify among the missions of the recognition group the following:

- making connections with the local public administration in order to establish the situation of the usable real estate fund;
- identifying the buildings established to satisfy the needs of the quartering;
- verifying the enclosing capacities of the established buildings;
- establishing the buildings for the installation of the controls;
- distributing spaces by units (subunits);
- establishing the places for arranging the shelters;
- establishing the itineraries for the influx of troops;
- establishing the area and the drainage itinerary in case of bombing of the ringing places.

The troop quartering activity and the problems related to it are an element of special importance in the multinational operations. This activity is the attribute of the logistics module, through the existing specialized personnel at the level of ”Force” and includes all measures taken to ensure national contingents with living space and offices, land, facilities, supply of relevant materials and firefighting.

At the level of the Force, a team of specialists has been set up, which has as its attributions, the organization of the staffing and deals with the settlement of any disputes that may arise between the contracting parties. Within the system adopted by NATO, the responsibilities regarding the accommodation spaces belong to both the contingents and the organization. Thus, the nations are responsible for taking over and handling the real estate occupied by their own troops, and NATO will take over the accommodation responsibilities for the command structures set up in the theater of operations, as well as for the contingents where the financing is executed jointly. For the accommodation spaces assigned to the national contingents this activity is ensured by the specialized personnel within the contingents.

Specific to the NATO-led operations is the fact that the activity of identifying the land necessary for the accommodation of national contingents is the task of the specialized personnel from the ”Force” command, while the actual contracting of accommodation is performed by the specialized personnel of national contingents.

When choosing the accommodation places, the facilities they will have to offer will be taken into account, as follows: the necessary conditions for exercising the leadership of the troops; natural coverings, in which – with a minimum of effort – it will be possible to arrange shelters for equipment, personnel, some storage places; ensuring working conditions for staff; ensuring the necessary conditions, rest of the staff, carrying out recreational activities; carrying out the activities of maintenance and repair of the equipment from the endowment of the contingent; storage of materials introduced in the theater of operations; food preparation and distribution; ensuring drinking and quality water; achieving with a minimum of effort the fences necessary to ensure the security of the deployment camps; rapid and covert evacuation of forces and means, if necessary.

Under certain conditions, the accommodation of the troops will be possible (usually for short periods), in mobile shelters provided by the Force Command, in the form of multifunctional containers.

The accommodation of the troops is usually done in the following spaces: rented buildings, for military observers who pay the rent for themselves; rented buildings, based on agreements concluded with local authorities; leased land, where non-permanent accommodation can be built; camps, where tents or prefabricated buildings (B-Huts) will be installed, different or combined variants of the aforementioned options.

The lands and the real estates will be returned to the rightful owners at the end of the mission, after the execution of the possible repairs necessary to restore them to the initial conditions.

Feeding the mechanized brigade personnel is carried out in compliance with the quantity and quality of the standards in force provided in the legislation and is a way to motivate human resources, because through the direct influence on health this ensures the maintenance of a high level of military morale.

During the execution of the operation, as well as during its preparation, the provision of food for the mechanized brigade personnel is executed ”depending on: food stocks; the role, place and missions of the units; food supply possibilities; food preparation possibilities; the possibilities of providing drinking water”[3] for food preparation and the possibilities of transport / distribution, so that it arrives on time and in hygienic conditions for the military.

Depending on the tactical situation, in which the units within the mechanized brigade are located, one of the following feeding regimes is established: normal (hot food for three meals in 24 hours), ”combat feeding regime”[4] (with battle rations – three meals) and ”cold food diet”[5] (cold food – three meals a day, but not more than for 48 hours).

During the preparation of the offensive, the feeding is carried out in hot food regime, and during the development of the offensive in combat feeding regime.

The feeding of the wounded within the districts of disposing of the medical subunits from the composition of the mechanized brigade, is carried out in compliance with the diets prescribed by doctors, without exceeding the quantities of food provided in the instructions.

Water supply for military food preparation, for drinking, personal hygiene, medical service needs but also for household needs (washing dishes, washing linen, technical needs, respectively, filling the liquids in the cooling installations of the equipment) can be done from the following sources: surface water, groundwater, atmospheric precipitation, existing facilities (wells, water networks, etc.). Water procurement is a very complex issue for the logistics bodies of the units in the composition of the mechanized brigade.

Taking into account the tactical situation during the execution of the offensive, a water reserve can be made, and if necessary it is rationalized. During the winter, water for the personal needs of the military can also be obtained from melting snow, thus reducing transportation needs. In fact, in winter the consumption of drinking water decreases on average by 25-30%.

When supplied with drinking water, the supplied tank trucks and those locally requisitioned will be used, as well as the supplied water filtration installations. For the washing of the linen, the filling of the liquid fills in the cooling installations, a high degree of water potability is not necessary and, therefore, for the execution of this activity, water sources can be used, usually surface and running, which do not respect a high degree of potability. In all cases, however, it is necessary for health care authorities to check the quality of water from these sources, in order to eliminate the risks involved in the discharge into these waters of chemical or bacteriological agents that can cause various contagious diseases or even the death of those who handle them.

The linen change of military personnel in the composition of the unit is usually performed weekly or when the situation requires it, once every 10 days. The linen gathered from the military during the bathing is washed through the civilian economic operators in the area of responsibility. In situations when there are no civil laundries in the area, improvised laundries can be arranged near watercourses, and laundry is performed with staff provided by the local public administration, in the area of responsibility of the mechanized brigade.

In order to avoid the appearance of diseases and to maintain a proper hygiene, it is necessary to change the linen after performing the bathing activity.

During the offensive, the staff will be bathed during the stationing in the concentration districts in order to prepare the offensive or after removing the units from the battle and introducing them in the districts to restore the combat capacity, to complete the stocks of materials, equipment and personnel.

Bathing is performed at the local baths or at the brigade’s campaign bath. You can also use shower and disinfection installations located on the chemical protection subunits or the bathrooms provisionally arranged in the disposal districts of the units/subunits. The bathing of the flocks is done according to the tactical situation, usually weekly or at least once every 10 days.

In the case of bathing in the brigade's campaign bath, the planning is drawn up by the planning officer and approved by the brigade's logistics chief.

The units whose staff perform the bathing are obliged to take the necessary organizational measures, so that the whole herd is bathed in the allotted time.

In order to maintain or increase the morale of the military in the brigade, all efforts will be made to ensure the aforementioned field services to the necessary hygienic-sanitary standards, as well as in time to a superior quality.

Funeral services, according to the legislation in force, involve ”the burial of deceased soldiers in the area of operations, after their evacuation from the battlefield by teams belonging to non-combatants, [...] with the provision of religious assistance corresponding to the confession to which they belong, after have been collected, identified and recorded”[6].

The personal belongings of the identified deceased shall be sent to their families or, in the case of deceased soldiers from the enemy forces, to the competent national authorities.

The burial places of the deceased soldiers are marked with visible signs on maps or plans that enter the archives of the mechanized brigade.

The evacuation of the dead from the area of operations of the mechanized brigade during the offensive on the move, to their place of origin will be done on transport circuits specially designed for this purpose.

In Allied Joint Publication for Logistics/2018 it is specified that in each NATO member state there are legislative provisions detailing the organization of funeral services.

The instructions within the Romanian Armed Forces briefly provide for the funeral services, without giving details about the management of the soldiers who died during the operations. At the level of the Romanian Army there are no structures specialized in funeral services. From my point of view, I consider that it is necessary to regulate funeral services at the army level, through clear instructions that will detail the organization and management of these services.

Campaign services, as a functional field of logistics, play an important role in ensuring the morale of the military, as they are, in fact, a large part of the primary needs of each individual.

Methods of motivating the military

The motivation of the military personnel had, has and will certainly have a main role in the physiognomy of the military organization. Knowing the stimuli that give remarkable results in motivating human resources as well as identifying the level of motivation, will make (as they have done in the past), the difference between failure and success.

Motivation means ”the act of motivating and its result”[7] which, transposed in the field of human resources means motivating people in their actions. But it does not mean that the financial reward is paramount, but also the improvement of social and mental representations of the organization to which an individual belongs.

According to the American psychologist, Abraham Maslow, the creator of the hierarchy of human needs, at the base of the pyramid were placed water, food, relatively constant body temperature (equipment), hygiene, etc. that is, the strongest specific needs of the individual, without which he could not focus on evolution, ensuring these needs should be the main basis for motivating military personnel. There are many factors on which the level of motivation of human resources in the military depends, but certainly the full satisfaction of the needs at the base of Malow's pyramid is the factor that plays a decisive role in motivating military human resources. Ensuring these primary needs of the individual finds its applicability in the functional field of logistics, campaign services.

In an organization, physiological needs are usually met by adequate material and financial incentives, but in the military environment in addition to salary, their provision is the main basis for motivating military personnel. Ensuring these primary needs of the individual finds its applicability in the functional fields of logistics. Therefore, from our point of view, they should be radiographed and optimized so that the efficiency of human resources reaches the maximum levels.

In essence, after studying Maslow’s theory, I can say that a satisfied need is no longer a motivating factor, but an unsatisfied need at the base of the pyramid (which is exercised by extrinsic motivation) can lead to large imbalances within an organization.

The normal satisfaction of needs is associated with the reduction of tensions, and their non-fulfillment endangers the very existence and functioning of the organization.

The cohesion and solidarity between commanders and troops is getting stronger every day; the feeling of mutual trust is what helps the soldier to stay in his fighting position, to resist the feelings of isolation and danger. It is certain that near him are his comrades, who fulfill the same mission and who, if necessary, will help him. Commanders must make efforts to keep in touch with subordinates and inform them as well as possible, but also to ensure that their physiological needs are met on time. The orders must be well explained, with all the details regarding the connections, the neighboring units, the support, etc. Thus, the soldier understands the meaning of his action in the middle of a team, of the unit of which he is part, which he defends and which, in turn, protects him.

In current activities, commanders predominantly use intrinsic and cognitive motivation (the military likes what they do, increases their knowledge, feels professionally accomplished, etc.), but also tries emotional motivation, making efforts for the military to be integrated as well as possible in the collective, to go to work with pleasure.

Any human activity, regardless of the degree of complexity, requires a certain energy consumption. In principle, the energy required to perform the activity results from the oxidation of food substances in the metabolic process. There is a basal metabolism that represents the energy consumed for the functioning of the organism in a unit of time, usually 24 hours, and a working metabolism that represents the energy necessary to perform various activities, such as normal walking, exercises with the weapon, the execution of genetic works, the throwing of hand grenades, but also the elaboration of a material, the writing of a graphic design for an application.

In order to create a solid motivational system, with a strong imprint on the morale of human resources, both professionally and socially, commanders/bosses can act in several directions, as follows:

- constantly informing the subordinates, so that, in situations of uncertainty of the evolution of a mission, each individual is aware of the situation of the structure of which he is part but also of his within it;
- maintaining the superior morale state acquired on the occasion of obtaining victories in combat / missions accomplished and avoiding their minimization, creating the premises for efficient action for fulfilling other missions;
- capitalizing on the professional and life experience of subordinates, as well as the skills, knowledge and skills formed;
- supporting subordinates to understand the role and place of their activities in all military actions;
- ensuring a favorable climate, without conflicts or unnecessary, unjustified and artificially created tensions;
- giving positive motivation to the military through encouragement and praise;
- instilling in subordinates the winning mentality and its development;
- performing a realistic treatment of failures without amplifying or minimizing them and remedying the consequences through optimal solutions to eliminate the causes;
- the intensity of the motivation to be correct and directly proportional to the complexity and difficulty of the entrusted missions in order to prevent the appearance of under-motivation or over-motivation;
- execution of control, support and guidance activities according to the principle of efficiency of the coercive-non-coercive relationship;
- creation of internal procedures for activities that are briefly legislated;
- ensuring physiological needs, from the base of Maslow’s pyramid to high and timely standards.

In conclusion, in order to achieve superior results and maximum efficiency in the execution of missions, commanders must take into account the motivational component. Achieving and developing a high motivation of the military leads to the optimization of activities to the creation of a favorable climate for the execution of team actions, but also to the harmonization of interindividual relations and the increase of cohesion within the military.

Conclusions

The battlefield, as a space in which the belligerent parties face each other, undergoes a continuous evolution, decisively determined by the unprecedented development of the general concepts regarding the conduct of the war. The military will need to be prepared to carry out a full range of missions, whether ground or airborne, independent or collective, assembled or combined in the form of multinational forces, NATO or the EU, as well as under a UN mandate, on national or international territory, in any area and on any continent, for the defence of the country or alliance, the fight against terrorism, humanitarian action, as well as the promotion of the values of international peace and stability in the world.

Therefore, I can say that the provision of the necessary field services to the military requires special attention due to the changing conditions of the battlefield. They must be flexible and support the decisions of the brigade commander.

The logistics mission does not start in the theater of operations, but in the country, since the initial training (Basic training), it materializes in taking measures that depend on the logistics department to provide the military with everything they need to successfully carry out actions military service in the theater of operations and does not end when leaving the theater of operations, but at the time of unloading management, handing over documents and materials in the country.

NOTES:

1 SMAp 57 – *Doctrina logisticii întrunite a Armatei României*, Bucharest, 2020, p. 78**.**

2 *** *Regulamentul logisticii operaţiilor întrunite,* Bucharest, 2008, p. 3.

3 *Ibidem*, p. 35.

4 *Ibidem*.

5 *Ibidem*.

6 *Ibidem*, p. 36.

7 https://dexonline.ro/definitie/motivare

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THE INFERIOR FLEET – A RISK TAKEN

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In the present article I set out to make an analysis of the concepts of current fleet and also of the inferior fleet in action, which have in common the quantitative and qualitative inferiority of forces and means. In naval conflicts the superior fleets quantitatively and qualitatively benefit from a considerable advantage in relation to the enemy. This advantage of the superior naval force, in most cases, leads to a rapid neutralization of the enemy naval forces, to the achievement of the freedom of navigation in the area of operations and to the fulfillment of the operative and strategic objectives. However, there is the possibility that an inferior naval force will avoid a decisive battle and the naval tactical actions it performs will greatly influence the conduct of events at sea. The novelty of this article is highlighted by the comparative analysis of the examples presented, which highlights the differences between the two concepts, so that the idea that an inferior fleet can act on the enemy's means of communication, can delay its actions for a short time, but without consistent support from the air force or allied forces, the inferior fleet will eventually lose the initiative and be defeated. Equipping ships of an inferior fleet with modern detection technique will qualitatively reduce the differences in a naval confrontation. The analysis of the naval confrontations shows that many naval battles and battles took place near the shore, from which we deduce the particularly important role that the air and ground forces have in supporting the naval forces.

Keywords: inferior fleet; current fleet; inferior fleet in action; naval tactical actions.

In this article I set out to analyze two concepts that encompass doctrinal and action issues, which are related to the expression of maritime power, the concept of fleet in existence and the concept of inferior fleet in action. Both concepts are specific to an inferior fleet, because I believe that, although they are developed by naval powers with limited possibilities of expression, there are significant differences between the two concepts. The novelty of this approach consists in the fact that, following a comparative analysis regarding the modus operandi of some fleets and doctrinal provisions in different schools of thought, those differences will be identified.

For this approach, we considered as a research hypothesis that the application of the concept of inferior fleet by a nation with access to the sea is suitable only for a short period of transformation of naval power and adaptation to new security threats in the region. To validate the research hypothesis, I proposed two directions of research, in which I want to make a delimitation of the two concepts and identify the implications for the expression of maritime power by applying the two concepts by states with maritime interests.

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We have found that each state with access to the sea or the ocean has had to develop its naval power over time in order to protect its own merchant ships, defend its own coastline against aggression from the sea or to conquer new territories. The size of the fleets and the capabilities developed differ according to the maritime interests of each nation. Usually, nations with a developed economy have managed to consolidate their naval power so that their maritime interests are protected in different parts of the globe.

The assertion of a nation as a naval power involves a lot of investment in ships, combat equipment, port facilities, training bases, shipyards, naval education, and participation in national or international naval exercises or naval operations in alliances or coalitions.

In many cases, nations with access to the sea or the ocean, for economic reasons in particular, do not develop naval power at the pace of technological evolution. Establishing the architecture of the fleets is based on the maritime space to be defended and the situation of the security environment in the region. As a rule, these fleets are quantitatively and often inferior in quality to the dominant nations' in the region.

An inferior fleet does not have many options for expression and therefore must find solutions, following in-depth analyses of the situation in the region and potential enemies, in order to fulfill the missions entrusted to it.

It is obvious that an inferior fleet is a risk in a naval confrontation, but through the possibilities of maneuver, fire and technological equipment it can avoid a decisive battle and can decisively influence the course of action of the naval enemy.

In the follow-up of the article I will present some particularities of the concepts of fleet in existence and inferior fleet in action and I will highlight the differences between these two concepts.

Conceptual delimitations

The concept of the existing fleet is very close to the concept of the inferior fleet in action with a common root, namely the inferiority of the quantities of forces and means available in relation to the enemy.

It is very unlikely that an inferior fleet will gain and maintain control of the sea, but the naval tactical actions it can perform can pose a danger to the enemy, cause the enemy to stop on an alignment and lose his initiative for the time being. An inferior fleet needs to continuously improve its capabilities in order to be able to react promptly in the event of a naval or air threat.

The concept of the existing fleet and the concept of inferior fleet in action are usually developed by small naval powers in confrontations with large naval powers. Most of the confrontations took place near the coast, where the inferior naval power benefited from the advantage of the configuration of the coast, the depths and the fire cover of its own actions.

Depending on the chosen strategy, an inferior fleet can be actively involved in combat actions specific to guerrilla warfare (strike and flee), thus applying the concept of inferior fleet in action.

The concept of an existing fleet is applied by a naval power by keeping naval forces in a safe place, protected from the enemy actions until the end of the conflict or until a time when the conditions for engaging in combat are met after receiving reinforcements so that it would be able to execute naval tactical actions against the enemy.

Below I will present some relevant examples of how the concepts of existing fleet and inferior fleet in action have been applied in various naval confrontations.

Means of expressing the concept of *existing fleet*

In order to analyze the concept of the existing fleet, we chose two relevant examples for the mode of action of some naval powers during a conflict.

The first example is the mode of action of the Argentine naval forces during the Falkland War. The conflict between Argentina and Great Britain took place between April 2 and June 14, 1982, a conflict that erupted following the invasion of the English Falkland Islands by the Argentine armed forces. The Argentine fleet participated in the conflict through a naval force composed of 1 aircraft carrier, 1 cruiser, 6 destroyers, 2 classic submarines, 1 amphibious transport ship, 5 patrol ships, 3 corvettes, 10 auxiliary ships and 15 merchant ships. On the other hand, the British Intervention Force participated with 5 nuclear submarines, 2 aircraft carriers, 10 T-21 frigates, 4 T-22 frigates, 4 Leander frigates, 7 destroyers, 2 assault ships, 3 patrol ships, 2 hospital ships, 4 dredgers, 40 auxiliary vessels and 10 landing craft.

In the face of such a naval force, the Argentine navy tried a surprise attack. The attack failed, and the Argentine Destroyer General Belgrano was sunk. It was decided to withdraw the Argentine ships in the territorial waters, from where they tried sporadically, without success, to break the naval blockade formed by the British.

Thus Argentina did not risk the loss of warships in direct confrontations, but applying this strategy was not able to help Argentine forces already landed on the Falkland Islands. Adopting this passive attitude, the concept of the existing fleet was applied, probably also in view of the very large quantitative and technological differences between the two opposing naval forces.

The second example is the mode of action of the Yugoslav naval forces during Operation Allied Force. Operation Allied Force was NATO's response to the implementation of UN Security Council resolution no. 1199 of 23 September 1998 amid Serbian military action against Albanians in the Kosovo region.

On March 24, 1999, NATO forces attacked Yugoslavia. Operation Allied Force ran from March 24 to June 11 and included the use of 1,000 aircraft from Italian bases and aircraft carriers deployed in the Adriatic Sea. The operation also involved the launch of Tomahawks from ships and submarines.

The naval forces participating in the Allied Force had the mission to monitor the air and naval space of Yugoslavia in the first phase and later the launch of the Tomahawk cruise missiles to hit targets on the territory of Yugoslavia.

NATO forces deployed in the Adriatic Sea were impressive. Thus, the USA deployed the aircraft carrier USS Theodore Roosevelt, amphibious assault ships (USS Nassau, USS Pensacola, USS Nashville), cruisers (USS Philippine Sea, USS Vella Gulf; USS Leyte Gulf), destroyers (USS Thorn, USS Gonzales, USS Nicholson, USS Ross, USS Peterson), nuclear submarines (USS Miami, USS Norfolk, USS Albuquerque, USS Boise). Great Britain participated with the aircraft carrier Invincible, the frigates (HMS Somerset, HMS Iron Duke, HMS Newcastle), the submarine HMS Splendid. France participated with the aircraft carrier Foch and 2 frigates, Italy deployed the aircraft carrier Giuseppe Garibaldi, 2 frigates and 1 submarine, and Germany deployed 1 frigate.

The Yugoslav Naval Forces deployed in the port of Kotor (Montenegro) consisted of 10 classic submarines, 4 frigates, 16 missile carriers, 15 torpedo boats, 8 minesweepers, 6 dredger ships, 15 landing craft, most of which were of Russian origin which were in an advanced state of physical and moral wear.

Although there were possible options for response at sea, Yugoslav decision-makers decided not to use naval forces in battle, so Allied naval forces acted unhindered in the Adriatic. Yugoslav decision-makers probably focused their efforts in one direction: the survival of naval forces[1]. The non-involvement of the Yugoslav naval forces in naval tactical actions during Operation Allied Force somewhat led to two conclusions.

The first conclusion is that the huge quantitative and qualitative difference between the two naval forces was realized and decision makers were against trying to develop naval tactical actions doomed to failure and most likely resulting in loss of equipment and personnel.

The second conclusion concerns the need to keep the Yugoslav fleet alive in order to have options to respond in the event of disputes with naval forces of the countries in the region Yugoslavia had disputes which.

Means of expressing the concept of *inferior fleet*

In most naval confrontations between the belligerent forces there were differences in the amount of forces and means available. In most cases one of the parties was inferior in number of ships or technologically. The role of a fleet, even if it is inferior, is to act and use all possible tactics to achieve the tactical objectives entrusted.

The concept of the inferior fleet in action stems from the strategy adopted by Lord Admiral Torrington in June 1960, when he was in command of an English fleet and decided not to decisively engage a French fleet, superior in terms of number of ships. He deployed his subordinate forces on June 26, 1960, near the English coast and called for support forces. The British government did not approve the addition of forces and the order was to engage in a naval battle under the given conditions.

Finally, the naval battle took place on June 30, 1960, was an expected defeat of the English fleet, called the defeat at the Beachy Head, but had the effect of stopping the French invasion[2]. The result of the battle was a tactical victory for the French fleet, an insufficient victory to achieve the strategic objective of landing on the English coast, due to the losses suffered during the naval battle.

Another example in which an inferior fleet through tactical combat actions managed to achieve a strategic objective is represented by the Iraqi navy during the First Persian Gulf War. After the invasion of Kuwait in 1990, Iraqi naval forces developed a complex system of coastal defence by intensively carrying out actions to plant mine dams in the Persian Gulf along the Iraqi and Kuwaiti coasts. The strategic concept of defending the coast against the multinational coalition was to wage a war on time-aligned alignments. Thus, for five months, Iraqi naval forces launched more than 1,300 mines into six dams, forming an arch of a circle of 150 nautical miles from the Kuwaiti border. Coastal mine dams and mine dams were launched against landing actions. Under these conditions, dredging proved to be a necessity from the first days of the conflict between Iraq and the Multinational Force formed around the USA for the liberation of Kuwait. Dredging units from the USA, Great Britain, France and Belgium were deployed in the Persian Gulf, dredging was also carried out with helicopters, but all the dredging actions carried out failed to prevent damage to the Tripoli helicopter landing craft. Iraqi naval forces hampered the maneuvering of Multinational Force ships in the Persian Gulf, several ships belonging to the Multinational Force were damaged and the strategic objective of preventing the amphibious landing was met. The mode of action of the Iraqi naval forces showed that in order to achieve the objectives of strategic and operational level, tactical combat actions are needed to be successful[3].

It can be said that the inferior fleet in action is based on the strategy of avoiding a decisive battle against a superior enemy and through the tactical combat actions it performs, it prevents the enemy from gaining absolute control of the sea. The main methods of action used by the inferior fleet in action, as a rule, are the attacks and raids carried out by surprise in order to cause as many losses as possible to the enemy[4]. The concepts of fleet in existence and inferior fleet in action can be determined by the inferiority of the amount of forces and means, the lack of initiative, the tactical situation at the level of the theater of operations or from political considerations.

Implications regarding the expressing of naval power by means of putting into practice the doctrinal concepts of *existing fleet* and *inferior fleet*

Generally speaking, by avoiding a decisive battle, the inferior fleet maintains its capabilities to act in a timely manner so as to contribute effectively to the achievement of operational and strategic objectives.

Over time, the inferior fleets carried out naval tactical actions with positive results through attacks carried out by surprise on targets on the enemy coast or by executing attacks on enemy communication lines. The conditions of success for an inferior fleet are closely related to the geographical position, the combat potential, the strong will to fight and the mode of action of the enemy.

Through the tactical combat actions performed, an inferior fleet can delay the actions of the enemy, cause the deployment of several forces at sea by the enemy and depending on the losses of the enemy can cause changes in the concept of action of the enemy.

It must be understood that in order to act effectively and be successful in trying to weaken the enemy's fighting power, an inferior fleet must not be much inferior to the enemy. An inferior fleet needs combat capabilities in the air, on the water surface and below the water surface to act in a coordinated and effective manner against a superior enemy.

Usually in peacetime the sizing of a fleet is determined by the geo-strategic situation in the region, the length of the coast, economic development and the maritime interests of the state. Fleet size in peacetime is a good indicator of how operational and strategic objectives will be achieved in time of war.

Personally, I believe that in order to operate successfully, the inferior fleet needs capabilities especially in the air and naval field, well-defended deployment bases, an integrated maritime image of the area of operations, an advantageous positioning of forces in relation to the enemy and a realistic conception of action.

There are few cases when an inferior fleet has carried out tactical actions at long range from the shore. One such example may be the mode of action of the American fleet before the Battle of Midway. As they sailed to Midway, Admiral Chester Nimitz, commander of the U.S. Pacific Forces in the North Pacific, ordered subordinate forces to perform only tactical naval wear and tear operations and not engage in decisive combat with the Japanese naval forces in order to avoid exposure of cruisers and aircraft carriers[5]. It must be admitted that the American navy was not much inferior to the Japanese fleet.

In most cases, the inferior fleet operates close to its own coast, and the conduct of combat actions is usually jointly performed with the air and land forces.

When the inferior fleet operates near its own coast, most likely, the strategic objective is not to allow the enemy to make an amphibious landing at the coast. In order to increase the chances of success, the inferior fleet must act from positions that can be covered by the air or land forces. By doing so, it is possible for the inferior fleet to compel the enemy not to carry out a direct attack but to perform a series of maneuvers and combat actions which would lead to greater wear and tear of enemy forces, delay landing at the coast and obtaining time to supplement its own forces in the area of operations.

Focusing on the Black Sea, a semi-closed sea, we admit that the Russian Federation and Turkey have naval forces far superior to the other states bordering the Black Sea. Also, the length of the coast of the two countries represents more than half of the total Black Sea coast. The other states bordering the Black Sea, Romania, Bulgaria, Georgia and Ukraine have positioned themselves over time on different positions depending on the political regimes. After the fall of the communist regimes, Romania and Bulgaria underwent a series of political, economic and military transformations in order to join the NATO alliance (North Atlantic Treaty Organization), an objective successfully achieved in 2004.

After the dismembering of the Soviet Union in 1991, the newly formed countries bordering the Black Sea, Ukraine and Georgia permanently expressed a desire to join the North Atlantic Alliance, but their efforts were systematically halted by direct or indirect action by the Russian Federation. The two states have failed to develop their navies in a competitive manner, and perhaps because of this they have suffered painful defeats in the face of the Russian Federation's much stronger Black Sea Fleet.

The confrontation between the fleet of the Russian Federation and the fleet of the Republic of Georgia in August 2008, was decided very quickly in favor of the Russian Federation. Thus, against the background of political and diplomatic tensions between Georgia and the Russian Federation, on August 7, 2008, the Georgian army entered the READY to FIGHT state. At the time of the conflict, the Georgian naval force consisted of 181 officers, 200 military non-commissioned officers, 114 soldiers and 36 civilians[6].

The ships of the Georgian naval force, a total of 21 small ships of different classes and types of ships, of Soviet origin, physically and morally worn out, were in two naval bases in the ports of Poti and Batumi. The Russian naval group called DATORIA consisted of the cruiser Moskva commander ship, a destroyer, three anti-submarine warships, two missile carriers, three landing craft, an electronic warship, a shipping vessel and a tugboat. The Russian naval group also benefited from strong air support consisting of bombing fighter jets. The official mission of the Russian group was to support its own ground forces engaged in the conflict and to carry out the transport of Russian refugees from the conflict zone. The mission was later changed to "support the ground forces to withdraw Georgian troops from South Ossetia and Abkhazia and then destroy the entire Georgian military capability"[7].

The Georgian naval forces engaged in intercepting the Russian naval group were composed of five fast patrol ships equipped with ship-to-ship missiles. The Russian naval group opened fire on Georgian ships, sinking two of them. The other Georgian ships made their way to their own ports where a few days later they were sunk by Russian Special Forces.

Following these actions of the Russian Federation, Georgia was left without battleships, the Coast Guard being the only one that through patrol actions ensures the protection of maritime interests.

The illegal annexation of the Crimean Peninsula by the Russian Federation and the forced takeover of Ukrainian warships in the port of Sevastopol strengthened the Russian Federation's position on the Black Sea. The Russian Federation positioned offensive air capabilities in the Crimean Peninsula through which it can project its power throughout the Black Sea basin. The naval strategy of the Russian Federation is to complete the Black Sea Fleet with new types of ships equipped with cruise missiles against ground targets or with new generation ship-to-ship missiles, in order to be able to design its naval power in the Mediterranean as well.

Until the Russo-Georgian War, the danger of conventional military aggression in the Black Sea was unlikely, but now local conflict zones in Ukraine, Abkhazia, South Ossetia and even Transnistria create insecurity in the Black Sea region[8].

Romania, even if it is a NATO member, must be prepared to respond effectively to potential threats through the Romanian Naval Forces, especially in the area of responsibility. The Romanian Naval Forces are undergoing an extensive transformation process aimed at achieving combat capabilities capable of responding to the challenges of the security environment in the Black Sea basin. Emphasis is placed on achieving and maintaining technical interoperability and action with partner vessels belonging to NATO and EU Member States.

We must not forget that although the Romanian Naval Forces have combat capabilities in the air, on the surface of the water and underwater, they mostly have ships whose lifespan has exceeded 20 years and special attention is required for the acquisition of ships and new generation equipment that responds effectively to existing threats in the security environment.

Romania has an inferior fleet in terms of quantity and quality compared to the fleet of the Russian Federation and Turkey, but NATO membership along with Turkey and Bulgaria provides security in defending naval interests.

Conclusions

From the examples presented it can be deduced the idea that the inferior fleet cannot engage in a decisive battle. Depending on their capabilities and the capabilities and intensity of enemy action, the inferior fleet must find opportunities for action in a limited space and time so as to achieve tactical victories in an attempt to contribute to the achievement of operational and strategic objectives.

It has been shown in most of the cases presented that an inferior fleet cannot gain control of the sea but can only perform specific actions to embargo the sea or limit the enemy's entry into a particular maritime space. In order to operate effectively, an inferior fleet must not be much inferior to the enemy fleet. It needs combat capabilities in the air combat environment, on the surface of the water and below the surface of the water, to determine the enemy to use as many resources as possible in an attempt to achieve their objectives.

Acting on the principle of strike and flee, the inferior fleet can gain sporadic, moral victories and can cause the enemy losses of technique and human lives that might affect its image and credibility. State-of-the-art radar technology discoveries, complex high-precision weapon systems, unmanned vehicle technology, the development of long-range hit vectors tend to reduce the gap between an inferior fleet and a superior enemy, especially near the coast. In addition to this statement, the inferior fleet needs the support of the air force and even the ground forces to be able to act effectively for as long as possible.

From the analysis of the two concepts I can say that the research hypothesis stated at the beginning of this article has been validated. The application of the concept of inferior fleet is especially appropriate as long as the naval forces are in the period of transformation, the prolongation or permanence of this concept representing an assumed risk.

It has been shown that the inferior fleet is not able to operate efficiently for a long time and any loss of technique and personnel considerably diminishes its fighting power. Equipping ships with modern equipment and continuously improving capabilities in all combat environments is essential for an effective response to any threat to the security environment.

Generally speaking, the fleet of a state is the main response option in case of a naval conflict and from this point of view the architecture of a fleet is generally determined by the economic factor, geographical positioning, security environment in the region and the maritime interests of the state.

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HARMONIZATION OF ROMANIAN LEGISLATION WITH THE NATO AND EU ACQUIS IN THE FIELD OF SECURITY AND DEFENCE POLICIES

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Romania’s accession to the North Atlantic Alliance and the European Union involved a long process of negotiation and legislative harmonization at the national level. For Romania, the membership to the two organizations represents an essential landmark in terms of ways of designing the national vision on national and regional security, marked by strategic continuity. In this context, Romania has been active and open in terms of legislative harmonization throughout all this time that has passed since accession, with a priority to enhance our geographical position. In addition to the undeniable benefits that NATO and EU membership bring to society, it also introduces vulnerabilities, so ensuring that national legislation is harmonized with the acquis communautaire must be a major, ongoing concern for all stakeholders, especially at the institutional level, where the responsibility for the elaboration and application of coherent policies in the field is concentrated.

Keywords: legislation; acquis; politics; security; defence.

For any national state, the harmonization of national legislation with that of the alliances to which it belongs must be a desideratum by which it contributes to the definition and preservation of a secure security environment with a high degree of security and trust. Adapting the regulatory and institutional framework to the dynamics of threats, establishing and enforcing minimum security requirements for national infrastructures, ensuring their resilience and developing national and international cooperation thus become a mandatory condition.

The development of a dynamic security environment, based on interoperability and services specific to the third millennium society, as well as ensuring respect for the fundamental rights and freedoms of citizens and national security interests, in an appropriate legal framework is also a condition we need to start from. Given this perspective, there is often a need to develop a culture of security among citizens, often insufficiently informed about the potential risks, but also about solutions to counteract them. The creation of a culture of security is based on the principles of legislative harmonization and the coordination of action plans aimed at ensuring security, through cooperation between all entities involved, both public and private, by prioritizing the security of national infrastructures and disseminating information, expertise and good practices.

In approaching the material, we start from the definition of the term ”acquis”, which comes from French and means ”what has been acquired”. In this context, the term acquis communautaire refers to all the common rights and obligations arising from the status of a Member State of the European Union or the North Atlantic Alliance, including, in addition to treaties, acts adopted by the EU and NATO institutions.

For example, in accordance with Decision no. 1367 of December 20, 2000 of the Government of Romania, published in the Official Gazette no. 30 of 17 January 2001, the acquis communautaire means that[1]:

• Primary legislation includes the Treaties of the Communities with all subsequent amendments and completions and represents the constitutional framework of the European Union, namely: the provisions of the Treaty establishing the European Community, signed on 25 March 1957 in Rome and of the Treaty on European Union, signed on 7 February 1992 in Maastricht , both republished in the Official Journal of the European Communities no. C 340 of November 10, 1997, as well as of any other treaties that will amend and complete them until the date on which the treaty for Romania’s accession to the European Union entered in effect;

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• Secondary legislation includes all Community legal acts (directives, regulations, decisions, recommendations, opinions, etc.) adopted by the Community institutions under the Treaties, namely:

- regulations, directives and decisions issued by the institutions of the European Union, as binding acts, as well as other acts adopted by the institutions of the European Union, such as: declarations, resolutions, joint strategies, joint actions, common positions, conclusions, framework decisions, resolutions and the like;

- multilateral conventions open only to the Member States of the European Union, as well as those open to a larger number of states to which the Member States of the European Union and, where appropriate, the European Commission are parties, designated as such by the latter as part of acquis;

- the case law of the Court of Justice of the European Communities;

- the European agreement establishing an association between Romania, on the one hand, and the European Communities and their Member States, on the other hand, signed on 1 February 1993 in Brussels and ratified by Romania by Law no. 20/1993.

It should be noted that, since all the languages of the Member States are official languages of the European Union, the translation of the acquis communautaire into the languages of those States is one of the obligations assumed by each of them[2].

Although the term refers in particular to the set of measures agreed at Union level, I appreciate that it can also be extrapolated to NATO level, given the content of the accession documents and the need for legislative harmonization at Alliance level. Therefore, the Acquis can be defined as a set of measures agreed between NATO / EU and each candidate country, which aims to establish a special consultancy so that they adopt, at minimal cost, the spectrum of rules and laws after which is administered by NATO or the EU[3]. Starting from the realities of the current, difficult and extremely turbulent geopolitical environment, NATO and Europe are trying to work closely together on the internal security and defence of each state, as well as the external security of the Union/Alliance[4].

On the occasion of various summit meetings and recent summits, EU and NATO leaders decided to attach particular importance and new impetus to the external security of their alliances, as well as to European and global defence by strengthening cooperation among Member States in this domain. In keeping with these commitments, the leaders of the two world organizations took a number of decisions in which:

• a plan for the implementation of security and defence administration and management standards and models was approved at Union level;

• the EU proposal on the European Defence Action Plan was accepted;

• rapid action was called for so as to accelerate security and defence cooperation between NATO and the EU.

With regard to the concrete measures to stimulate security and defence cooperation at European level, in December 2016, the European Council approved the Security and Defence Implementation Plan.

The implementation plan sets out the way forward for the development of EU security and defence policy. Based on the Union's Global Strategy, the implementation document focuses on three major strategic priorities[5]:

• response to external conflicts and crises;
• strengthening the capacities of the partners;
• protection of the EU and its citizens.

Figure 1 *EU level of ambition for security and defence*[6]

Among the concrete measures aimed at achieving these objectives we find the following:[7]

• launching a coordinated annual defence review process (CARD) to strengthen defence cooperation among Member States;

• establishing permanent structured cooperation (PESCO) to strengthen defence cooperation among Member States wishing to move forward in this cooperation;

• establishing a military planning and leadership capability (MPCC) to improve crisis management structures;

• strengthening the EU's rapid response toolkit, including EU battlegroups and civilian capabilities.

Unfortunately, it has often been found that the bureaucracy of the institutions and the lack of coherence in information on the Union's defence sector make communication rather difficult. The coordinated annual defence review process (CARD) would provide a better overview at EU level of defence spending, national investment and research efforts in the field. The review would increase the transparency and political visibility of European defence capabilities, while also bringing a wide range of benefits, including:

• better identification of deficits;

• a deeper cooperation in the field of defence;

• a better and more coherent approach to defence spending planning.

Following successive consultations, on 25 June 2018, the Council approved the 2018 progress catalogue, assessing the capacity gaps and the objectives to be achieved.

In the field of permanent structured cooperation, this was first addressed in the Lisbon Treaty, which provides that a group of Member States may strengthen their defence cooperation by establishing permanent structured cooperation (PESCO).

In this context, on 22 June 2017, EU leaders agreed to launch a permanent structured cooperation to strengthen Europe's security and defence, and on 11 December 2017, the Council adopted a decision establishing PESCO. All EU Member States participate in PESCO, except for three countries (Denmark, Malta and the United Kingdom, the latter leaving the Union at the end of 2019). The participating Member States agreed on an initial list of 17 projects to be undertaken under PESCO, targeting projects in areas such as: training; capability development; or operational availability in the field of defence. These initial projects were formally adopted by the Council on 6 March 2018 and, on the same day, the Council adopted a roadmap for the implementation of PESCO.

On 25 June 2018, the Council adopted governance rules for projects within PESCO, and on 19 November 2018, the Council adopted a second set of 17 projects, bringing the total number of projects to 34. The latter cover areas such as training, capability development and operational availability on land, sea and air, as well as cyber defence.

Improving crisis management structures was first set on 8 June 2017, when the Council agreed on the establishment of a military planning and leadership capability (MPCC) in the European Union General Staff, with a view to improving the EU's response capacity in a faster, more efficient and coherent way. This capability is strategically responsible for the operational planning and conduct of non-executive CSDP military missions.

EU battlegroups are one of the tools the Union has at its disposal to respond quickly to crises and conflicts. These are, or should be, military forces that can be deployed quickly on the ground. Although battlegroups were set up in 2005, they were never deployed due to political, technical and financial obstacles. For this reason, in order to strengthen the Union's rapid response capabilities, its leaders agreed on 22 June 2017 that the deployment of battlegroups should be a common cost and that the funding of battlegroups should be managed at EU level through the Athena mechanism on an ongoing basis. Romania has been committed to setting up groups since the beginning, initially through two participations. The contribution to collective defence was reaffirmed in 2020, by including in the White Paper on Defence the provisions on: operationalization with priority of the single package of forces assumed; ensuring the capabilities of the NATO Response Force (NRF), the NATO Rapid Reaction Initiative (NRI) and the European Union Battlegroups (EUBG) [8].

Although the European Union is working to develop civilian capabilities and improve the response capacity for civilian crisis management, including through the possible creation of a central response capability, the world is in a pandemic crisis (COVID 19) at the time of writing this article, in which several European states questioned not only the Union's capacity for reaction but also the mutual support among Member States, although, in the end, the seeds of civic spirit began to emerge.

In terms of legislative harmonization with the NATO and EU acquis, at national level, Romania had and must consider the triptych Romania -

NATO - EU, as an indissoluble relationship and as a source of security for a country on the border the two entities, through a realistic approach and awareness at European level of the existing risks and opportunities. Also, in the mechanism of legislative construction, the Romanian state must permanently promote the expansion of the space of prosperity, democracy, security and predictability in its neighbourhood.

Therefore, starting from the idea of the indissolubility of the Romania - NATO - EU relationship, in our approach it is necessary to consider the EU-NATO cooperation relationship, established more than 15 years ago. This led to the development of a wide range of tools which provide increased security for the citizens of Europe and beyond. Relatively recently, on 10 July 2018, the EU and NATO signed a new joint declaration setting out a common vision on how the EU and NATO will act together against common security threats. Building on contemporary threats, EU-NATO cooperation focuses on sensitive areas, such as: military mobility; cyber security; hybrid threats; countering terrorism; or the newer conflict with variable geometry, a concept that is beginning to take shape in the analysis of military thinkers. The new joint statement highlights that recent EU efforts to step up defence and security cooperation are strengthening transatlantic security: ”We welcome the EU’s efforts to improve European security and defence in order to better protect the Union and its citizens and to contribute to peace and stability in the region and beyond. Permanent structured cooperation and the European Defence Fund contribute to the achievement of these objectives”[9].

With the common goal of strengthening EU-NATO cooperation in seven strategic areas, the Joint Declaration[10] on EU-NATO cooperation addresses:

- hybrid threats;
- operational cooperation, including maritime issues;
- cyber security;
- defence capabilities;
- industry and research;
- coordinated exercises;
- capacity building.

The fragmentation of the European defence market, the costly duplication of military capabilities or insufficient industrial cooperation and lack of interoperability have in many cases led to the inefficient use of allocated budgets, although a joint action plan has been established following the signing of the joint declaration of the two major organizations in the field of defence and generous sums have been invested. To address these issues, the Defence Action Plan has been constantly revised, with a view in particular to boosting the cost-effectiveness of defence spending, improving defence cooperation or building a stronger industrial base. However, we also have positive consequences, which have been included in the plan, being oriented towards three key actions necessary for the current politico-economic context:

- establishment of a defence fund;
- encouraging investment in the defence industry;
- strengthening the single defence market.

In order to respond appropriately to the current security challenges, at national level, in accordance with the NATO and EU acquis in the field of security and defence policies, action has been taken on several levels, the most important of which are:

- at the budgetary level, by allocating 2% of GDP for the defence sector, materialized for the first time in Law no. 6/2017, the State Budget Law for 2017;
- in the field of procurement, by including in the procurement packages “offset” offers, except for contracts awarded by one government to another government, where Romania has strategic interests (Government Emergency Ordinance No. 189/2002, as subsequently amended and supplemented);
- in the field of organization, by setting up national commands (Special Operations Forces Command and Cyber Defence Command, following the decisions taken at the 2016 NATO Summit in Warsaw) and multinational commands deployed in Romania (Multinational Corps Command South-East, South-East Multinational Division Command or South-East Multinational Brigade Command).

All these measures taken at national level reflect the concern of Romanian decision-makers for harmonization with NATO and the EU both in the legislative field, but also in terms of security and defence policies, demonstrating strategic continuity with the two organizations. At the same time, the need to increase the operational capacity of the Army, together with a proper management of defence resources can significantly contribute to the revitalization of the national defence industry, in an allied context, so we can react timely and interinstitutional in the context of current threats.

The need for joint action also derives from the National Strategy for the Defence of the Country for the period 2020-2024 (”Together, for a secure and prosperous Romania in a world marked by new challenges”) which identifies NATO and the EU as the main vectors for promoting stability and security for Romania, given that it is a state on the Eastern flank of NATO and on the Eastern border of the European Union. Both organizations have demonstrated their ability to effectively meet the objectives of ensuring the security and economic prosperity of the Member States, while demonstrating a strong strategic potential for permanent adaptation to changes in the security environment[11].

In conclusion, starting from the need to know on a large scale the risks and threats arising from the current geopolitical context, as well as how to prevent and counteract them, a synergistic action of EU and NATO member states is required, which requires communication and cooperation among specific actors in this field, including in the field of legislation. As a border state, both for NATO and for the EU, by being aware of the existing risks and threats, Romania has constantly promoted in the security and defence policies the expansion of the space of prosperity, democracy, security and predictability in its neighborhood. Therefore, whether we are talking about the EU or talking about NATO, the harmonization of the Romanian legislation with the acquis communautaire in the field of security and defence is a continuous process in which all the elements of the Romanian legislative and executive powers are involved. Depending on the type of European act, the implementation mechanism is different but the finality is the same, respectively the implementation with the observance of the Romanian legislation of the respective act.

NOTES:

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CHALLENGES REGARDING SOCIETAL SECURITY IN THE EUROPEAN UNION

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Societal security essentially refers to the sustainability of traditional models of language, culture, traditions, religion, and national identity, under acceptable conditions for evolution. The European Union is both a space inhabited by over 430 million inhabitants (natives, minorities, immigrants) and a space of many cultures and the manifestation of societal security. Strengthening state and societal resilience within the EU and in the neighborhood helps to reduce and stop various security threats. National political efforts to reduce vulnerabilities, foster pluralism, coexistence and respect, as well as deepen relations with national minorities, indigenous peoples and immigrants, make a decisive contribution to strengthening societal resilience. Through this article we want to highlight theoretical aspects of societal security, but also some challenges to social security in the European Union.

Keywords: societal security; European Union; identity; threats; vulnerabilities; migration.

Brief theoretical presentation of the concept of social security

The concept of social security appeared for the first time in the already well-known book ”Peoples, States and Fear. The issue of national security in international relations”, written by Barry Buzan.

Since the early 1990s, Barry Buzan, along with Ole Wæver, Jaap de Wilde and other collaborators, have reinvented and reinterpreted this concept by transforming social security into a cornerstone of the Copenhagen School. By the end of the 1990s, other additional concepts had been developed within this school, and the concept of social security had lost some of its central place; however, it remains the most innovative concept of the Copenhagen School[1].

According to the Copenhagen School, ”social security refers to the perceived ability of a community to survive, i.e. to the sustainability of traditional models of language, culture, traditions, religion, national identity, in conditions acceptable to evolution”[2]. From this definition the two dimensions of social security are deduced: the objective dimension, which refers to the preservation of group markers, such as language and customs, and the subjective dimension, which refers to the survival of the community, as a place of identification for its members.

Security concerns exist at all levels of the international system and interact with perceptions of security in other sectors, either constructive or destructive, but it is important to note that the rise of social security in security studies has had both intra-scientific roots in the general trend. of orientation towards identity, culture and constructivism, as well as extra-scientific roots in the predominant ethnic conflicts after the Cold War (especially those in Europe)[3].

The object of reference of social security is not the state, but ”any kind of larger groups (...); In the current world system, the most important objects of reference in the societal system are: tribes; castles; clans; nations and ethnic units similar to nations, called minorities; civilizations, religions and race”[4].

The organizing concept in the societal sector is identity. ”Societal insecurity exists when communities of any kind define an evolution or potential as a threat to their survival as community [entities]”[5].

According to the classification made by Barry Buzan, Ole Waever and Jaap de Wilde, the most common threats[6] to social security are: *migration* – people X is invaded or diluted by influxes of people Y, community X will no longer be what it was due to that the population will be made up

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of other people, i.e. the identity of Y is changed by a transformation in the composition of the population; *horizontal competition* – although there are still X people living there, they will change due to the cultural and linguistic influence generated by the expansion of the Y neighbors' culture; *vertical competition* – people will stop seeing themselves as X, either because there is an integrative project (like the EU, etc.) or a regionalist secessionist (like Quebec, Catalonia, etc.) that pushes them either to broader identities or to narrower ones; *depopulation* – due to disease, war, hunger, natural disasters or policies of extermination, only if it destroys the society, becomes a matter of social security.

Of course, in practice, combinations of these categories of threats to identity can occur and can take place on a spectrum that has international, programmatic and political threats at one end, and unintentional and structural threats at the other[7].

The European Union – a space for the manifestation of social security

The 27 EU Member States, with a population of over 430 million[8], it forms a space of ethnic, religious, linguistic diversity and a space for the widespread manifestation of social security.

The picture of the EU's demographic composition is complex. Along with the native population of the Member States, there are three types of ethnic minorities[9], respectively: *indigenous peoples*, such as the Sami or Lappish populations of Sweden and Finland; *immigrants,* who come either from outside the EU or from the European continent (especially those from Central and South-Eastern Europe) or from outside it, such as: Turks and Kurds in Germany and Belgium; Algerians, Moroccans, Tunisians in France; Moroccans in Spain; Turks, Indonesians, Moroccans in the Netherlands; Albanians, Moroccans, Slovenes, Tunisians in Italy; *national or historical minorities,* such as: Basques in Spain; Hungarians in Romania, Slovenia and Slovakia; sorbets in Germany; the Germans in Alsace and Lorraine (France); the Turks in Bulgaria; Albanians, Vlachs, Macedonians and Turks in Greece. The EU motto ”United in diversity” reflects the complexity of this picture.

The cultural richness of the Union is represented by the diversity of cultures and traditions, in which one of the most relevant aspects is linguistic diversity.

According to official sources[10], there are three alphabets and 24 official languages in the EU; another 60 languages are commonly spoken in certain regions or by specific groups; the number of languages spoken in the EU has increased with immigration. Linguistic diversity and intercultural dialogue are the pillars on which EU language policy is based. To transform cultural diversity to an advantage, initiatives to support linguistic diversity are diverse: language learning, programs such as the Creative Europe program[11], which supports literary translation, or the celebration of the European Day of Languages, annually on 28 September. According to the EU Council Resolution on the European Strategy for Multilingualism of 21 November 2008, ”existing linguistic diversity adds value to the development of economic and cultural relations between the European Union and the rest of the world, strengthens social cohesion, intercultural dialogue and European construction”[12].

Migration – threat and related vulnerabilities to EU social security

The social security dimension has opened and opens up various topics aimed at solving identity problems, managing the relations between its reference objects and the conflicts generated by their ”collision”. In 2007, referring to the developing role of social security, Professor Mark Rhinard noted that this ”is not only the meaning of existing developments, but prescribes the direction for the future”[13]. A good example of the realization of the statement ”prescribe the direction for the future” is one of the priorities of the EU's external action – ”state and societal resilience in the neighborhood”[14].

Among the most common threats to EU social security, mentioned by Barry Buzan, Ole Waever and Jaap de Wilde, migration remains the main threat, with an impact on the cohesion and identity of society, fundamental elements of the concept of social security.

The impact of this phenomenon on European security can be identified more strongly when migrants outnumber the basic population, which leads to the creation of new communities of people, by redefining the identity of the population, not only its structure but also the whole culture, the culture of migrants. becoming the dominant culture[15].

Thus, as Berry Buzan considered, ”’the danger posed by migration is mainly a matter of how the relative number of emigrants interacts with society’s absorption and adaptation capacities”[16].

Initially, the phenomenon of migration was approached from a purely sociological perspective, with implications in the social plan of the European Union[17], but later, the complexity of its effects also influenced the security of the European Union, in its other dimensions, especially in the economic one. It induced them, for example, on the labor market.

The European space has always been the main geographical area for migratory flows, people who migrated for various reasons that led them to arrive in Europe, namely ”to escape political oppression, war and poverty and to reunite the family, to seek opportunities entrepreneurship, knowledge and education”[18].

Migration to the European Union has evolved as Community construction has expanded, from a strictly economic dimension to the regulation of freedom of movement by the Treaty of Rome, adopted in 1957 and entered into force in 1958, as an essential component for the normal development of any society democratic, with multiple ramifications in all sectors of social life.

The initial regulatory framework on migration was also complemented by the provisions of the Schengen Agreement adopted in 1985 and entered into force in 1995, which had a double meaning[19], in the sense that the free movement of persons is one of the four foundations of the European Union which conferred the right of any citizen of an EU Member State to reside in another State in order to pursue a profession and, at the same time, eliminate formalities and internal border controls between Member States. A significant role in the evolution of the migration issue was played by the provisions of the Amsterdam Treaty adopted in 1997 and entered into force in 1999 by which the European Union became an ”area of freedom, security and justice”.

The consolidated version of the EU Treaty and the Treaty on the Functioning of the EU, both signed in 2007 and entered into force in 2009, are the current basis for regulating migration in a context where illegal migration is one of the threats to EU Member States and requires an approach. on migration and asylum, drawing on the realities facing the international community[20].

The complexity of the migration phenomenon derives from its direct implications on the social security of both the European Union and the Member States, which required the adoption of unitary European policies to ensure the full adaptation of migrants in their countries of residence, but also the preservation of the country’s culture, origin, based on ”the aspiration for the integration of all the peoples of Europe”[21].

The evolution of migration in the EU must be analyzed in the context of the phenomenon of globalization, which involves both economic and cultural changes in the world society[22] and leading to ”raising living standards in developing and sometimes poor countries”[23].

The issue of migration must be approached from a double perspective, respectively, both in terms of the country of origin and destination of migrants, in order to create a balance between benefits and losses for both parties, being a constantly evolving phenomenon in the condition of population growth, preferences for certain areas of activity or instability in certain areas.

If in the beginning migrants were engaged in the labor market mainly in carrying out activities that involved unskilled work for which employers paid them much less than their own citizens, now European countries are increasingly looking for workers skilled in their respective fields, highly skilled, which leads to an increase in the economy in the destination space.

Weakening the cohesion of EU nations and minorities across the Union is, in our view, the main vulnerability to EU social security. In order to reduce this vulnerability and strengthen the resilience of states and societies and to meet the objectives of the Europe 2000 strategy, EU cohesion policy (regional policy) for the period 2014-2020 has set 11 thematic objectives and a budget of € 1,082 billion[24] to reduce economic and social disparities. and territorial differences between the various regions and Member States of the European Union and improving the quality of life.

Other solutions identified by European leaders for strengthening societal ties are the following: increased mobility, cultural exchanges, educational exchanges, research cooperation, civil society platforms (e.g. the Cultural Platform for Intercultural Europe, a civil society initiative inspired by the European Year of Dialogue intercultural 2008)[25].

From this perspective, today, Europe is no longer a point of attraction only in terms of finding a job, but it is also of interest to students. In this sense, the Erasmus program aims, on the one hand, to integrate them into the labor market and to acquire social inclusion, through investments in human resources and, on the other hand, to improve the educational systems of states, ensuring access to education for migrants and providing real employment opportunities, similar to those of the citizens of the state in which they are located.

Conclusions

In today's dynamic security environment, it is certain that threats to social security will continue to exist, but EU Member States must take common steps to identify, manage and limit them[26].

In this regard, a package of measures with such a horizontal dimension should be adopted, respectively with the involvement of all internal state authorities for the application of existing laws and the improvement of the legislative framework but also for the management of borders through judicial cooperation between political and economic bodies, financial institutions and non-governmental bodies, as well as a vertical dimension of security, in which case European, regional and international cooperation with the development of common unitary policies, agreements and initiatives at EU and Member State level is essential.

Of particular importance in ensuring social security in the EU is a comprehensive approach to mechanisms for anticipation, prevention and early warning in order to detect and prevent risks and threats to social security. It is based on mutual trust between states, on a real-time exchange of information but also on intense integrated cooperation within the Standing Committee on Operational Cooperation on Internal Security (COSI), which brings together relevant EU agencies and bodies, and may invite bodies such as Europol, Frontex, Eurojust, Cepol and others to attend meetings as observers.

All these are performed in a situation in which the threats to social security in the EU caused by the phenomenon of migration are increasingly significant, if we take into account the fact that in 2018 a number of 2.4 million immigrants from non-euro countries entered the EU with 27 member states and on January 1, 2019 were settled in the EU, from non-EU countries, a number of 21.8 million people (4.9%) of the 446.8 million European inhabitants[27].

It is clear that in this age, effective security of the EU cannot be ensured without taking into account its external dimension, as internal security depends to a large extent on the EU's external security, the way in which the global approach to security is all EU states is crucial in the successful management and guarantee of their social security.

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THE EVOLUTION OF THE LEGAL FRAMEWORK FOR DEFENCE PLANNING IN ROMANIA

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In a geopolitical and geostrategic environment that seems to be more complex than ever, ensuring the security of the world's states becomes a leading and binding concern on the part of the political-military decision-makers. In this respect, considering the various constraints of political, economic and social nature, as well as the availability of limited resources, a reliable defence planning system should ensure the achievement of the defence policy objectives in the most effective and efficient way, seeking to make the best use of available resources. Additionally, taking into account that the defence planning process has a long-term horizon, appropriate consistency and continuity of policy objectives regarding national security must be ensured in order to avoid undesired consequences on the long run that might translate in future unacceptable security risks.

Keywords: defence planning; legal framework; capabilities; NDPP.

The defence component is the centerpiece of the security construct for any state. Based on the values, aspirations, interests, geopolitical context and threat assessments, the defence and security policy provides, through its specific objectives, the generic coordinates for ensuring the sovereignty and the territorial integrity of any state.

Defence planning is the process designed for translating defence policy objectives into military and non-military capabilities. Moreover, the defence planning process has the role of ensuring the matching between the defence policy objectives and defence budget allocation designated for this purpose, therefore ensuring the required balance between aspiration and ability. In practical terms, defence planning seeks to ensure that a nation has the necessary forces, assets, facilities and capabilities to fulfil its defence-related tasks throughout the full spectrum of missions, in peacetime, crisis and war.

The national defence planning in Romania was considered an exclusive military responsibility until the end of the 20th century. The political-military context of the 1990s brought up the need for addressing defence planning from a different perspective. This was required by the democratic evolution of the country, implying the civil control of the armed forces. Romania's first deployments of forces in expeditionary operations under the leadership of the United Nations (UN), the North Atlantic Treaty Organization (NATO) and the Organization for Security and Cooperation in Europe (OSCE), the acquisition of Romania's status as a NATO partner within the framework of the Partnership for Peace established in 1994 and Romania's aspirations to join the Alliance are key steps in shaping and strengthening the national defence policy.

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First Steps in Regulating Defence Planning

In correlation with the long transformation process that the military institution has gone through, the new approach to defence planning required an adequate legal framework which evolved progressively throughout the following two decades. The first step in this regard was done in year 1998 when the Government issued an Order addressing the defence planning[1]. The initial legal framework was later approved by the Parliament in year 2000 with some amendments.

The 1998 document referred to the "national defence planning of Romania" without defining an actual process. Instead, it established the main responsibilities for defence planning and identified the main documents representing the foundation for the national defence planning: The *National Security Strategy*, the *Governing Programme*, the *Government White Paper on national security and defence*, the *Military Strategy of Romania and the strategies and directives of other governmental* *institutions with responsibilities for defence, public order and national security.*

Subsequently, in 2000, as part of the approval process by the Romanian Parliament, a significant amendment was introduced, represented by the inclusion of the *Governing Programme* among the national documents underpinning defence planning. While the Governments Order does not provide the necessary directions on how defence planning should be carried out, the approval law introduces the term ”programme” and delegates to the appropriate authorities the responsibility to issue internal instructions on how the defence planning will be actually performed. The new legal framework for defence planning allowed for the first *National Security Strategy* to be issued by the president and adopted by the Parliament in 2001.

Defence Planning and the Accession to NATO

For Romania, the transition from the NATO Partner status to the NATO Ally status in 2004 required a series of institutional adaptations and legal framework revisions, prior and even after the actual accession. The revision of Romania's Constitution in 2003 is a relevant change that aimed at ensuring the necessary legal basis for the future NATO membership and the later integration in the European Union. These changes made possible the transitioning to fully professional armed forces by suspending conscription, participation to NATO collective defence and harmonizing the national defence planning with the NATO defence planning process.

The revision of the Constitution implied the appropriate adaptation of the legislation on defence planning, which resulted in the adoption of *Law no. 473 dated 4 November 2004 on Defence Planning*. The most evident change was noticed in the title of the new law. While the previous law was entitled ”The National Defence Planning of Romania”, the new law was entitled simply ”Defence Planning”. Defence planning was no longer defined as ”activity” but a ”complex of activities and measures aimed at promoting the national interests, defining and achieving the national security objectives related to defence”. The new definition implies the complexity of defence planning but does not define it as a process. Nevertheless, the document includes the term ”*defence planning process*” without actually describing defence planning as a process.

Another significant improvement was the introduction of six defence planning domains[2], in line with the existing planning domains identified by the NATO defence planning process at that time. Moreover, the intent to synchronize the national defence planning with the corresponding NATO process is demonstrated by other new elements. The term ”NATO collective defence” is included in the document and the *NATO Strategic Concept* is mentioned among the foundation documents for defence planning. These new elements justify the title change, recognizing that the defence planning was now extended beyond the national defence as it was previously the case.

The foundation documents for defence planning are classified on two levels: national and departmental. The *National Defence Strategy*[3] is the capstone document for defence planning, complemented by the Governing Programme as the other national level reference for defence planning. At departmental level, besides the *White Paper on Defence* and the *Military Strategy*, the *Defence Planning Guidance* and the *Major Programmes* are explicitly mentioned among the department level instruments.

By providing the periodicity of issuing the relevant documents, the legal framework suggests to some extent the cyclical nature of a defence planning process. However, if the initial law ensured a certain level of synchronization and sequence of releasing the main documents (every four years), the new law provides different references for deadlines (inauguration of the president, the inauguration of a new cabinet). Moreover, the *Defence Planning Guidance* and the *Major Programmes* had to be issued annually, in line with the national budget cycle.

In terms of responsibilities, Law no. 473 of 2004 identifies the role of the Supreme Defence Council of the country regarding the endorsement of the relevant documents but its coordinating role in ensuring the unity of effort of all governmental institutions with responsibilities related to the defence sector is not explicitly stated.

Other changes aimed the time horizon for the documents driving the defence planning. While the time horizon for the former National Security Strategy and the subsequent documents, including the Programmes, was 4 years (considered medium term), but allowing for provisions on longer term, the time horizon for the National Defence Strategy introduced by the 2004 law was increased to 5 years. As opposed to the previous consistency in this regard, the other documents had different time horizons: 4 years for the *White Paper on Defence* and the *Military Strategy* and 6 years for the *Defence Planning Guidance* and the *Major Programmes.*

Another worth-mentioning step ahead was made in 2006 through formalizing the Defence Planning Council as the key decision body at the Ministry of Defence level on matters of defence planning.

Adapting the defence planning to NATO Defence Planning Process (NDPP)

The most recent revision of the legal framework on defence planning resulted in a new law on defence planning in 2015[4], which aimed to incorporate the important changes that took place in the previous decade: Romania had since become a member state within NATO and joined the European Union, Romania's armed forces had undergone a significant transformation process, NATO had reviewed its own defence planning process and adopted a new Strategic Concept[5]. Meanwhile, the evolution of the security environment urged for a renewed approach for the Euro-Atlantic security resulting in a shift of focus back to collective defence for the Alliance.

The new law defines defence planning as a process, recognizing its importance as a multiplier in the transformation process for the armed forces. In addition, it has made several improvements to the regulatory framework on national defence planning highlighting its evolutionary nature.

By introducing the ”capabilities-based panning” concept, in accordance with the renewed NDPP[6], the law aimed to ensure better alignment and synchronization with the corresponding planning processes of NATO and EU. This change came in contrast with the previous approach in the NATO defence planning, when the process was focused exclusively on force planning addressing conventional forces, in complementarity to the nuclear planning which was subject to a separate process. Focusing the defence planning on capabilities rather than on formations and force elements, NDPP demonstrates a shift from the mainly quantitative aspects of the conventional power to the qualitative aspects of these forces and the desired effects that they are expected to produce. Therefore, defining the term “capability” in the national legal framework[7] was a logical consequence. Moreover, the 2015 law describes the components of the capability development efforts (doctrine, organization, training, materiel, leadership, personnel, facilities and interoperability), recognizing the complexity of the capability development effort and allowing for alignment with the NATO capability development methodology.

Recognizing the recent evolution in the military domain, the changes in the security environment and the nature of modern military operations, as well as exploiting the experience from the recent and current deployed operations, the need for non-military capabilities was included in the new law. This was in line with the expanded list of planning domains[8], also included in the new law, some of which refer to components of the defence planning which are not necessarily related to military forces but rather to non-military capabilities. For this reason, the document provides the need to involve other institutions besides the Ministry of Defence, in the defence planning effort, in accordance with their respective responsibilities related to defence.

The relationship between defence planning and operations planning was neither defined, nor clear in the previous versions of the law. This time, together with the introduction of the ”capability-based planning” concept, where the capability is seen as the glue between the two inter-related processes, more clarity is provided with regard to this relationship. The Military Strategy is seen as the linking document between these two processes.

Evaluation of defence is another new feature of the national defence planning process described by the 2015 law. From this perspective, no evaluation instruments were mentioned in the previous versions of the planning process. Nevertheless, the NATO defence planning process included a solid review component in the new NDPP which dedicated the final step of the process to the review (Step 5 – Review Results).

Besides the new elements introduced by the law as described above, some adaptations of the existing provisions provided more flexibility for defence planners. Firstly, the planning horizon for the Defence Planning Guidance and the Major Programmes was extended to 10 years, somehow in line with NDPP which is mostly focused on medium term. Secondly, the programming phase of PPBES was now provided with a 3-year budget estimate, allowing for a sustainable multi-annual programming. Additional flexibility is now ensured as the legal provisions allow for the out-of-cycle review of the main defence planning documents, whenever conditions require.

Conclusions

For a modern democratic state, the need to defend the sovereignty, independence and unity of the state, the territorial integrity of the country and the constitutional democracy is mentioned in the fundamental law and detailed in the national defence strategy. The vehicle that provides the link between the need for defence and the instrument that ensures it – the armed forces, is the defence planning process. Thus, the development of defence capabilities, which ensures both the fulfilment of national defence needs and the provision of the contribution to collective defence, in an allied context, must be a national priority.

Following the iterative evolution of the relevant legal framework and the inherent adaptations to the corresponding allied process, the national defence planning process continuously evolved. The current national defence planning process is the result of an evolution stretched throughout the past two decades and its improvements and benefits are emphasized in this article. This evolution was largely influenced by the political-military transformation of Romania until reaching its maturity as a NATO ally and the need to synchronize the national defence planning with NDPP. While the existing legal framework ensures the prerequisites for conducting the national defence planning, a structured capability-based defence planning process, at national level, can be further improved by integrating the defence planning domains in a whole of government approach under the coordination of an appropriate authority.

NOTES:

1 *Government Order no. 52 dated 12 August 1998 on National Defence Planning of Romania* approved by Law no. 63 dated 24 April 2000.

2 According to the law these domains are: force planning, armaments planning, resource planning, logistics planning, command, control and communications planning, civil emergency planning.

3 The National Security Strategy was no longer mentioned by the *Law on Defence Planning*, although other contradictory legal provision requiring the President to issue the National Security Strategy were still in force.

4 *Law no. 203 dated 16 July 2015 on Defence Planning*, published in Official Journal of Romania no.555, on 27 July 2015.

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6 *NATO Defence Planning Process* approved by the North-Atlantic Council https://www.nato.int/cps/en/natohq/topics_49202.htm, accessed on 07.09.2020.

7 *Law no. 203/2015* defines the term ”capability” as the ability [of forces] to perform actions in support of achieving certain objectives.

8 The 12 defence planning domains included in Law no. 203/2015 are: force planning, armaments planning, C3, logistics, civil emergencies, resources, air defence, air space management, intelligence, medical, research and development, and standardisation.

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A COMPARATIVE ANALYSIS OF THE COUNTER-TERRORISM CAPABILITIES OF SOME NATO MEMBER STATES

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Terrorism is a scourge that tends to become a normality in the everyday lives of the European citizens, despite the development of the systems that respond to the terrorist actions. The recent attacks in France (October 29, 2020) and Austria (November 02, 2020) confirm this sad reality. In this article, we aim to identify the directions of action of some European states that, in spite of being NATO partners, oppose the perception of the phenomenon of radicalization of Islamism, in order to combat terrorist actions.

Keywords: terrorism; radicalization; terrorist attacks; response; France; Turkey.

Preliminary Considerations

The effects of globalization, the migration flows, the international context defined by the conflicts in Syria, Iraq, Libya or the situation in Nagorno Karabakh, the measures imposed at the international level to stop the financial flows that finance terrorist activities, the increase of the alert level at border crossings are part of factors highlighting the growing global and, in particular, European concern for limiting risk factors that tend to turn into terrorist threats. Are additional measures justified? In the current conditions, the main effort is directed by most states towards the management of the health crisis generated by the COVID-19 pandemic, by combating the economic crisis that is foreshadowed as a result of the restrictions imposed for limiting the spread of the virus. Material and human resources are almost entirely absorbed by the health crisis. The restrictive measures imposed on the population, in an attempt to stop the spread of the virus, in addition to the beneficial, palpable effects confirmed by statistics, also bring an effect of increasing social tensions, exacerbating social and racial conflicts and here we refer in particular to the movement ”Black Lives Matter”[1] in the United States, to the exacerbation of older faults springing from the colonial past, for religious reasons, if we refer to France[2] or even the decline of the population's confidence in the state's ability to handle severe situations, crises, irrespective of their nature. In the absence of social events and with the drastic limitation of social interaction, the Internet has reached unprecedented proportions in terms of level of interaction with everyday activities, from socializing to shopping, from the educational process to the official communication space, from the debate environment to criminal space. The activities associated with crime or terrorist activities were also connected to the new reality. The beheading of a history-geography teacher near Paris, specifically in the town of Conflans Saint-Honorine, on October 17, 2020, the killing of three other people in a cathedral in Nice on October 29, 2020 or the attack in the evening of November 3, 2020 on the citizens of Vienna, all these represent unfortunate evidence that Islamic radicalization, the activation of independent terrorist cells or the planning of terrorist attacks are possible in the light of the new reality generated by the health crisis. Although ”Islam is the religion of peace”[3], the recruitment of new followers or the radicalization of the followers of the Islamic religion, even if we are talking about European citizens, born and raised in Europe, seem to know a process of intensification proportional to the increase of time spent online and the level of inherent social tension, generated by the restrictive measures imposed to prevent SARS-CoV2 infection.

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In parallel with the management of the health crisis, terrorism remains a fundamental, current issue, which determines new directions of action in order to reduce the terrorist threat and protect the fundamental interests of its citizens. In this article, we shall deal with France and Turkey in the light of the diplomatic conflict between the two countries, highlighted by the statements of their presidents[4], triggered in the context of tense relations amid conflicts in Syria, Libya and the eastern Mediterranean, following President Macron’s reactions launched in the public space after the terrorist attacks that shook France in the autumn of 2020, in spite of being states that are members of the North Atlantic Alliance and the common fight to eradicate the terrorist phenomenon.

Turkey

Faced with a series of terrorist attacks since 1960 and culminating in the attack on the Reina nightclub in the Ortakoy district of Istanbul, Turkey suffers on several levels from this affliction.

The series of terrorist attacks (approximately 20, if we refer to the period 2015-2020) have largely affected the economy of this country, where an important share is represented by tourism and trade.

The PKK (Kurdistan Workers’ Party) separatist group, DHKP/C (Revolutionary People’s Liberation Party/Front) and the Kurdish separatist group TAK (Kurdistan Freedom Falcons) are the main threats to the state, according to the Ankara government, for which terrorism represents, from a legal point of view, ”any act performed by one or more persons belonging to an organization, in order to change the Republic, the political, legal, social, secular and economic system, affecting the indivisible unity of the state or destroying its authority, putting and endangering their existence, eliminating fundamental rights and freedoms or harming state security, affecting public order, through measures of pressure, force and violence, terror, intimidation, oppression or threats”[5].

A list of terrorist attacks that have taken place on the Turkish territory in the recent years strengthens the definition of the terrorist act, in the legal sense of the Turkish authorities:

- in June 2015, two attacks were recorded in Diyarbakir, near the border with Syria, in which six people were killed and several injured;
- on July 20, 2015, in Suruc, Sanlurfa province, a suicide bomber blew themselves up, killing 33 people and injuring over 100;
- on October 10, 2015, two successive explosions, caused by suicide bombers, near the main station in the Ulus area of Ankara, caused the death of 86 people, injuring other 186;
- on December 23, 2015, at Sabiha Gokcen Airport in Istanbul, a bomb exploded, killing one woman and injuring another;
- at the beginning of 2016, more precisely on January 12, a suicide bombing in Sultanahmet in Istanbul, killed 10 tourists and injured 15 others, in an area heavily frequented by foreign tourists;
- February 17, 2016. A car bomb exploded near a military car near the General Staff of the Turkish Armed Forces in Ankara, killing 28 people and injuring 61 others;
- March 13, 2016. A bomb attack, which took place in the central area of Ankara, in Kizilay Street, killed 34 people and other 125 were injured[6].
- March 19, 2016. A suicide bomber blew themselves up in Istiklal Street in the central area of Istanbul: 4 people died and 36 were injured;
- April 27, 2016, at Bursa, near the Great Mosque, a symbol of the city, a woman detonated a bomb hurting 13 people;
- May 2016, a bomb attack at a Gaziantep police station: two police officers were killed and 23 were injured;
- June 7, 2016, a bomb attack in the Vezneciler district: among the victims were 7 police officers and 4 civilians, and other 36 people were injured;
- June 28, 2016, Istanbul Ataturk International Airport: three suicide bombers blew themselves up at the Arrivals terminal. Forty-two people died and 239 were wounded, many of them foreigners;
- August 20, 2016, a suicide bomber blew himself up at a wedding party and killed 50 people injuring 94 people[7];
- August 24, 2016, the explosion of a bomb on the road between Antalya and Kemer resulted in the injury of 2 police officers;
- October 6, 2016, an explosion took place in Yenibosna district, Istanbul: 10 people injured;
- October 14, 2016 a rocket attack took place in Antalya, towards Kemer. No casualties were reported;
- November 4, 2016, Diyarbakir, a car bomb was detonated: 8 people died and over 100 were injured;

• November 24, 2016, a bomb exploded near the governor's office in Adana: 2 people were killed and 21 others injured;

• on December 10, 2016, a bomb was detonated near the stadium of the Besiktas football club, located in a tourist area of Istanbul, in which 44 people, mostly police officers, were killed and more than 150 people were injured;

• on January 1, 2017, the attack on the Reina nightclub in the Ortakoy district of Istanbul, frequented by foreigners: 39 people killed and 69 injured[8].

• on September 12, 2019, Diyarbakir, a car bomb was detonated: 7 people died and 10 were injured;

• July 5, 2019: A car bomb exploded in southern Turkey, near the border with Syria. Three people died and 2 were injured[9].

To counter this wave of attacks targeting Turkey and its interests, the Ankara government set itself a trilateral strategy: fighting by all means against the PKK, participating in the international anti-DAESH coalition and fighting the DHKP/C. It was actually one of the first countries to join the United States in 2001 in the fight against terrorism. In May 2002, the European Union placed PKK and DHKP/C, the organizations that posed the greatest threat to Turkey, on the list of terrorist organisations. In fact, with the integration of Islamic parties such as Refah Partisi or Adalet ve Kalkmma Partisi (AKP) into the party legal system, with the state's democratic reforms of 1990-2000, the only major problem left was the Kurdish separatism. Ankara's counterterrorism strategy was based on a 2006 law that establishes drastic punishments for those guilty of terrorist acts or terrorist propaganda. The law includes challenged measures, such as blocking or suspending the publications or sites suspected of terrorist propaganda. Access to personal data and communications may be blocked without a warrant or prior warning, in the event of a suspicion of terrorism.

Beyond the institutional architecture created to reduce the terrorist threat or internal unrest (materialized by the failed coup attempt of July 15, 2015), Turkey remains a fully involved partner in the battle against DAESH, while pursuing its own security objectives. In fact, President Erdogan stressed at the time of the launch of the military operation against DAESH that the Turkish government does not differentiate between PKK and DAESH, considering them equal threats. Thus, the military operation "Spring of Peace" launched on 9 October 2019 is the third major intervention of Turkey in Syria since 2016. While Ankara considers it an anti-terrorist operation, with the stated aim of eliminating terrorist elements from the Syrian border region, especially members of the Kurdish YPG militias (who contributed to the fight against DAESH), NATO allies challenge its opportunity. Moreover, Turkey intends to create a 30-kilometer strip inside the Syrian state, under the justification of a "safe zone". The presence of the YPG near its borders is perceived by Ankara as a threat, as opposed to the strategy of some allied states in the fight against DAESH, including France, which has a different vision in relation to its own interests.

France

One of the western states most affected by terrorism, France does not recognize, from a cultural point of view, their ethnic minorities. They consider that religion is totally separate from the state and belongs to the private sphere, resulting in the fact that no form of religious organization can replace or contradict the provisions of the Constitution.

Although in France, from a social point of view, there is a large Arab-Muslim community, made up of both immigrants (many of them illegal) and French citizens, it is difficult to make an accurate estimate of the number of people who make it up because it is forbidden to collect ethnic or religious data during the periodic censuses. All the theories and estimates converge on the reality that Islam is the second largest religion in France after Catholicism.

As France colonised much of Africa in the past, a sense of historical revenge seems relatively easy to mobilize.

Hence, from a cultural, social or historical perspective, the confrontation between Islamism and the values of the Republic has deep roots. However, Islamist terrorism is a relatively recent phenomenon, with the first Islamist attacks hitting France between December 1985 and September 1986, claimed by the Hezbollah group in response to the involvement in the Lebanese civil war. Since 2012, the situation has changed radically, with France beginning to be hit by a series of jihadist attacks. Since the Islamic State proclaimed the "caliphate" in June 2014, France has become the country most affected by Islamist terrorism[10]. An enumeration of the terrorist attacks committed on the territory of France supports this statement:

- on March 15, 2012, Mohamed Merah shot dead three soldiers, in the middle of the street, in Toulouse and Montauban, and on March 19, he shot three children and a teacher in Toulouse, being killed, on March 22, by the police;
- on January 7, 2015 the terrorist attack at the headquarters of the French satire publication Charlie Hebdo of Paris, France: 12 people died and ten others were injured. The three perpetrators of the attack were identified. Two of them were Franco-Algerian brothers Said Kouachi (34) and Cherif Kouachi (32), and the third, Hebdo Hamyd Mourad (18), turned himself in to police.
- on November 13, 2015 – Armed men and suicide bombers carried out a wave of attacks in Paris, targeting restaurants, a concert hall and the neighbourhood of Stade de France, killing 130 people and injuring hundreds. Eight ”terrorists” lost their lives in the attacks, seven of whom blew themselves up. In parallel, terrorists opened fire with automatic weapons at restaurants and terraces at Bataclan, Charonne, Bichat, Le Petit Cambodge, and Fontaine au Roi, at the intersection of Faubourg-du-Temple. The other suicide bombings took place near the Basilica of Saint-Denis;
- on July 14, 2016, a 31-year-old Tunisian man behind the wheel of a truck hit the crowd gathered in Nice to watch the fireworks launched on the occasion of France’s National Day, killing 86 people and injuring more than 400, according to official estimates;
- July 26, 2016. Two men took several hostages in a church in the Normandy region. The priest of the church was killed, while another hostage was seriously wounded;
- on September 26, 2016 a man opened fire in front of a supermarket in Port-Marly, and seriously injured two people, later barricading himself in his own apartment;
- April 20, 2017 a policeman lost his life and two others were injured during an exchanged fire on the famous Champs-Elysées boulevard in Paris, the aggressor being shot;
- March 23, 2018 four people lost their lives and other 16 were injured during three attacks in Carcassonne and Trebes (southern France), including a gendarmerie officer;
- on May 12, 2018 a young man armed with a knife killed a passer-by in Paris and injured four others;
- August 23, 2018 a man armed with a knife killed two people and seriously injured a third person, in the city of Trappes, on the outskirts of Paris, being subsequently neutralized by law enforcement;
- September 9, 2018 seven people were stabbed in the centre of Paris in broad daylight;
- October 8, 2018 a man was killed and two others were seriously injured in an exchange of gunfire in a bar in Toulouse. The bombers fled with a motorcycle, unidentified;
- December 11, 2018, at least two people died and ten were injured in an exchange of fire near a Christmas market in Strasbourg, causing panic;
- June 27, 2019, two people were wounded with gunfire, in front of the mosque in Brest;
- October 17, 2020, a teacher was beheaded in Conflans-Sainte-Honorine, near Paris;
- October 29, 2020, a 21-year-old Tunisian man killed three people in a cathedral in Nice.

France’s response to the wave of terrorist attacks was swift and energetic: immediately after the multiple attack in Paris in November 2015, a state of emergency was established throughout the country. The continuation of the attacks led to its successive extensions (6 in number) supporting the suppression of 32 attacks[11], offering the possibility of extended house arrest, administrative searches without the approval of the judiciary authorities, the creation of security zones or the dissolution of associations or groups participating or facilitating acts associated with terrorism. Operation Sentinelle[12] was launched in January 2015, in which the armed forces support the forces of the Ministry of the Interior[13], by creating joint patrols, with the mission of maintaining public order, contributing to a massive presence in public places, means of transport or objectives of tourist interest. The main purpose is to deter, prevent or intervene as soon as possible in any public event or terrorist act. In fact, after the attacks in Paris and Nice in October 2020, President Macron decided to increase the number of soldiers involved in the operation from 3,000 to 7,000, in an attempt to stop the series of terrorist attacks.

On October 30, 2017, France adopted a new anti-terrorism law that gives increased powers to law enforcement, while limiting the control of the judiciary over their actions. Proponents of these measures believe that they will create the necessary conditions to stop the terrorist and extremist rise in France. The law gives increased powers that include decisions related to border control or the closure of places of worship. Moreover, it practically legislates some measures applied during the state of emergency, granting them permanent status, with the intention of increasing efficiency in the fight against terrorist acts.

Conclusions

Two NATO member states, frequently hit by terrorist attacks with severe economic or social consequences, actively involved in eradicating the terrorist phenomenon, partners in the international anti-DAESH coalition, are in full diplomatic conflict, triggered by recent verbal disputes between their Presidents, against the background of the recent attacks in France. Two weeks before the attack on the professor in Conflans-Sainte-Honorine, Macron described Islam as a religion of ”crisis” and announced new measures against the ”Islamic separatism”, a statement that drew reactions from several Muslim-majority states, with Turkey at the forefront, urging world leaders to protect Muslims ”if there is oppression against Muslims in France”, as Erdogan said in a televised speech. The dispute degenerated, even resorting to the mutual withdrawal of diplomatic officials or calls for a trade boycott of products originating in the two countries.

We are thus witnessing the channelling of the energies of two partner states, towards a dispute that, paradoxically, limits or diminishes the capabilities of the systems of prevention of the terrorist actions of the two countries in the fight against terrorism.

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THE PERSONNEL/COMBATANT MOTIVATION – AN OVERWHELMING FACTOR FOR THE ACCOMPLISHMENT OF THE MISSION

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Motivation is the basis of the functioning of the personnel/combatant performed and represents the concept that explains the difference between the mode of action of each soldier / combatant that results in the accomplishment of the mission successfully or without satisfaction. All combatants should learn that the next mission is the most important one. Commanders must therefore be aware that the motivation of subordinates is their ability - primarily through personal example - to create an environment in which subordinate human resources can and want to achieve the required objectives, to use their potential to maximum. Motivation has not only the role to determine people to work, regardless of the quality of their work, but to make them work well, to encourage them to use all the physical and intellectual resources they have. If there is motivation, there is superior performance and productivity, there is job satisfaction, therefore the ultimate goal of the organization is met.

Keywords: military organization; motivation; psychological factors; military personnel; commander.

In recent decades, we have witnessed what security and safety experts call the "revolution of military affairs" that has led to radical changes by states and alliances in doctrines, regulations, manuals and approaches to conflict and crisis situations. From time immemorial, man as part of the military organization has been a major concern for the decision makers of the military operation, but technological changes have brought to the fore another approach to maximum protection of the combatant because we know very well that the most important and "expensive" resource is the human one.

Thus, we are talking about the emergence of capabilities/capacities that contribute substantially to the fulfillment of the mission and no longer present the previous risk attributed to the combatant who, most of the time, no longer has to expose himself to maximum risks and is an operator of new technology felt the presence in the military field. This, of course, does not exclude situations in which human presence is absolutely needed, but we are talking about a tendency to replace, as much as possible, the human factor directly involved in risk.

At the same time, we are talking about a multitude of factors not only external, but also internal that influence the functioning of organizations and implicitly the military, factors that represent real challenges for them. In this extremely dynamic environment, in which a group of variables escapes control, the growing obstacles faced by organizations lately, are increasingly placed on the "shoulders" of human resources, which organizations must take into account.

In order to achieve its objectives, the military organization and implicitly the military unit must have the capacity to ensure and maintain the human resources it needs, by anticipating the evolution of the system which it is part of, as a result of its adaptation to the current politico-military realities.

An issue that conditions, to a large extent, the development and rational use of human resources in the Romanian Army consists in the introduction of behaviors systematically oriented towards strategic objectives. A central role in the design and substantiation of human resources activities is played by personnel strategies and policies, which have become essential components of human resources and managerial ways to professionalize it. It seems that at the level of the Romanian Army "the awareness and accountability solution […] is relatively simple to formulate, but it is more difficult to implement: the consistent and permanent investment in people"[1].

Considering that human resources are one of the most important resources of defence and represent

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the ”essence of the process of transformation”[2] of the army, I consider that modernization in the field of human resources should not be limited to reducing the number of members, for reasons of flexibility, but should materialize in modern and qualitative staff structures that provide a high level of performance through a motivating human resource management. Moreover, if we take into account the scale of the phenomenon called ”artificial intelligence” we cannot ignore the high degree of specialization and professionalism required of personnel working within and for the military organization and this in direct competition with large multinational corporations that use methods increasingly modern to stimulate and motivate its own staff.

What I want to emphasize is that, in this material, I do not address motivation in terms of determining whether or not to execute the orders received by the military, but in its internal ”mobilization”, to make every effort and use all skills to the fullest in order to contribute substantially to the fulfillment of the mission. We know very well that there is a difference between doing something because you ”have to” and doing the same thing because you want, like or any other feeling that starts from having the motivation to perform that action efficiently and at the highest standards.

Moreover, the reality around us shows us that it is important to motivate the subordinate staff to continue to work in that structure and to continue to specialize in that field, which supports the fulfillment of the mission of our unit. Without specialized staff we cannot carry out the specific activities of the annual recruitment plan, which means that we cannot fulfill the mission of the unit.

Conceptual aspects of the motivation

According to the *Explanatory Dictionary of the Romanian language*, motivation is defined as ”the totality of reasons or motives (conscious or not) that determine someone to perform a certain action or to aim at certain goals”[3].

From the perspective of the psychological field, motivation is a ”fundamental concept in and in general in human sciences, expressing the fact that the basis of human behavior is always a set of motives – needs, trends, affections, interests, intentions, ideals – that support the achievement certain actions, facts, attitudes”[4] and ”a set of factors or impulses that trigger, energize, maintain (or interrupt) and direct a person’s actions or behaviors”[5].

Studying and analyzing the definitions presented, we deduce as an essential idea of motivation the existence of something inside the individual that underlies subsequent actions, that something aware or not by the individual that determines in his mind the need and desire to take that action. We consider that something starts from a desire/need of the individual, but we also ask ourselves the question: Can we influence the appearance of that something that would determine the individual act towards a certain action?

Going to the military field, motivation is seen by specialists in the field as ”Convincing the military to adhere to the objectives of the mission in which they are involved”[6]. Also, ”the main aspects of teamwork are related to communication, common goals, cohesion and leadership. Common goals represent the direction and motivation for action, and commitment to common goals forms the team”[7]. We also deduce from this approach the main action: the reason to do something based on a set of factors that determine people to behave in different ways to external or internal stimuli. Thus, we can say that a certain external factor may have different effects, depending on the time of application, in conjunction with other internal factors, even on the same individual which leads us to believe that certain influences exerted by the organization on the individual may determine choosing a direction, making the necessary effort and, in particular, the persistence of involvement in the execution of a military action, i.e. the application of specific techniques to give some reasons to the combatant.

From a military point of view, motivation can be understood as a process of investigating undesirable behavioral tendencies, which lead to ”physical and mental disengagement, to group disintegration, emphasizing the balance between duty and desertion, between involvement and indifference, between engaging in combat and withdrawal”[8]. In other words, motivation is a force that causes members of the military organization to behave in a certain way to accomplish a certain goal (mission).

Therefore, we reiterate the fact that through motivation, the military is more or less dedicated to the way of fulfilling the mission and not to choosing between executing and not executing the mission. We want our subordinate staff to act in all situations at the maximum level of skills, aptitudes and abilities available so that the quality of the work undertaken is reflected in the effectiveness of the effort made to fulfill the mission received or that contributes to the team.

Considering the study and analysis of the concept of motivation, we can draw certain conclusions, namely:

- the concept of motivation is used to explain why the individual does what he does, so motivation is the cause (genesis) that tends to determine an individual to trigger and perform actions;
- as a process of organization, functioning and development of the human psyche, motivation explains a certain situational or perspective human behavior;
- motivation is determined by phylogenetic, historic and individual antecedents, but at the moment of its manifestation, due to the previous accumulation, it acts from inside;
- motivation has a dynamic and directional character, it is directly related to the process of knowledge and affectivity;
- motivation can be determined, even without the individual's knowledge, by external factors.

Studying and analyzing the main provisions in the field in the military organization, the motivation of the personnel can take the following forms, in opposite pairs:

Positive motivation and *negative motivation* – determined by the influence of purpose and belief on the satisfaction of the combatant in carrying out activities within the military organization.

Positive motivation highlights the beneficial effects of praise, appreciation and rewards (promotions, bonuses, awards, etc.) on staff efforts to perform the tasks received.

Negative motivation refers to the achievement of the organization's objectives by using aversive stimuli (threat, sanction, blame, etc.). The efficiency of this type of motivation is variable and involves huge physical, mental and emotional consumption and therefore must be used with caution by commanders.

Both the positive and the negative motivation materialize through economic stimuli (salaries, bonuses, salary imputations, etc.) or moral-spiritual stimuli (awarding medals, praises, criticism, warnings).

Intrinsic motivation (internal or direct) and *extrinsic motivation (external or indirect)* – take into account the location of the source of the motivational effect.

The intrinsic motivation concerns the relationship between the expectations, perceptions, feelings of the military and the concrete content of his work. This form of motivation consists in determining the military to get involved in order to obtain the desired results within the military unit. By carrying out these activities, the subject obtains satisfactions related to his personality (self-fulfillment), stimulating professionalism at the same time. Specific to this type of motivation is to obtain satisfaction by performing an appropriate action.

Extrinsic motivation is generated by the external work environment and is applied by someone else. In other words, the military carries out the necessary activities to achieve the objectives of the organization because his actions will generate certain reactions from the military unit that will produce satisfaction.

It is recommended that the two types of motivations be used equally by commanders and that a clear distinction be made between the reasons why staff remain in a unit in a particular position and the reasons why they decide to move to another unit. military, to another position or even to resign from the system. The military mentions intrinsic causes when they say what they like about their job, and when they have to justify why they quit a job, they tend to invoke extrinsic factors.

Depending on the immediate needs of the military, we meet:

Cognitive motivation and *affective motivation*. *Cognitive motivation* is determined by the intellectual stimulation of the individual and has its origin in the need for information, knowledge, learning, innovation, etc. *The affective motivation* strictly targets the human, sentimental dimension of the military, emphasizing the satisfaction of the needs to obtain the adhesion and recognition of the other members of the organization. This type of motivation aims for the military to have a good and relaxed tone at work in the company of colleagues and to be sympathized and appreciated by them.

Within the military organization, the motivational process should be complex, by combining all the motivational forms presented above, to achieve the objectives. A commander should know when and how to capitalize on all types of motivation to get maximum results. Depending on the specific needs of each subordinate, his/her particularities, the commander should be able to identify the best incentives to determine his/her motivation. In the military, it is very difficult to use positive motivation, by offering economic rewards. If in civilian organizations, employees can benefit from all kinds of motivations, because it is up to the manager to grant bonuses, promotions, salary increases, in military organizations the possibilities to stimulate people financially are limited, and promotions must follow lengthy procedures. Therefore, military commanders are at a disadvantage compared to managers in private companies, as they have fewer opportunities to motivate their subordinates to achieve their objectives.

Motivation – complex phenomenon of psychic activity

The approach to motivation usually begins with the description of the force existing in the individual, which determines him to act or persist in thinking and / or action. Motivation is a basic concept of human performance that can explain individual differences in behavior.

Regardless of the formative aspect of the psychological system, motivation starts from the empirical finding that any human behavior is directed from within, regardless whether it is about thinking or acting. In order to understand the complex structure of motivation, we aimed to analyze different motivational phenomena and the functional links between them, which can be considered, on the one hand, more or less complex forms of motivation, and, on the other hand, motivating factors. Thus, among the motivational phenomena we can mention:

- needs – the fundamental motivational elements of the personality, showing most strongly the bio-psycho-social balance of the human being in the conditions of the environmental demands;
- impulses – which consist in the appearance of an accentuated excitability of certain nerve centers that trigger the action;
- the motives – the motives that trigger, sustain energetically and orient the action;
- the intentions – the elements through which the transition from motives to goals is achieved;
- purpose – which symbolizes the mental outline of the desired result;
- tendencies – the expression of orientation, directing the action in a certain sense;
- interests – active and sustainable orientations of the individual towards certain things or phenomena, fields of activity, etc.

In the context of the approached issue, we will try to analyze, in short, the interdependence between needs, motives and interests.

Need is the body’s source of adaptive energy. Based on and by virtue of necessity, under the influence of internal stimuli or impulses, the most diverse actions are undertaken. Satisfaction of the need leads to a reduction in tension (rebalancing). Thus, the need goes from the active state to the latent state.

The human being, in the conditions of social and cultural life, mediates the satisfaction of natural needs through various means of civilization. Thus, the natural needs are diversified, becoming selective. To a greater extent in man, under the influence of social living conditions and through the internalization of social relations and models of action, new needs appear, unrelated to hereditary endowment. There are secondary or acquired needs that are divided into material ones (smoking, alcohol consumption, clothing, etc.) and spiritual ones (need for coexistence, interpersonal communication, knowledge, etc.). The latter result from the conditioning of internal energies and develop analogously to organic needs.

The needs are activated after a certain periodicity at intervals of hours, days, months. So they appear as dimensions necessary for life. The flagrant dissatisfaction of needs generates states of unhealthy tension. Over-satisfaction of needs leads to either their extinction or their underdevelopment. In each person, depending on the conditions of life and activities, a constellation of variable needs is formed in terms of intensity, periodicity, orientation and method of satisfaction. Knowledge of man also implies a description of the individual system of needs. It is very important for a commander to know the specific needs of subordinates, to take into account the states of tension or imbalance that arise as a result of deprivation or overload in order to apply those methods of motivation and stimulation of the individual’s motivation to obtain results in accordance with the mission of the military unit.

The need defined as an internal state, an instinct or an impulse, as mentioned above, is a reserve of energy. When the need develops in this way, as it triggers the action, it becomes a motive. The reasons are energizing, pulsating and orienting, directional. This is why selectivity results. The variety of motives in the context of the human personality makes everyone relate differently to the same objects of reality.

Our cognitive relationships with the world are doubled inside by certain positions, respectively personal motives. The objective meanings acquired are associated with the subjective-individual meanings, also resulting from a certain life experience. Reasons psychologically explain human actions, but they are not always confused with goals.

Since, as a rule, the means of satisfying needs are indirect, the cause (reason) does not coincide, in principle, with the purpose (objective). The purpose is obvious; it results from the activity. The motive that drives the action can take many forms. Educating the higher motives with a high social significance is very important. In the Armed Forces, we must finally get a motivation appropriate to its content and social functions.

When in the plan of knowledge, the reason coincides with the purpose, an interest is constituted. The soldier carries out an activity with pleasure. Success in performing actions that repeatedly influence motives strengthens them and turns them into interests. The coincidence between reason and purpose in accomplishing an activity leads to the shaping of the inclination, which is of interest not only for knowledge, but also for practical action, often professional.

If interest and inclination are added the consciousness of the corresponding aptitudes, then the conditions for the constitution of a vocation are created. The subject not only likes a profession, but even feels a calling in this regard because, having the necessary skills for the profession, he/she feels it is his/her duty to society to adopt it and realizes that only in this way can it be achieved. The vocation unites the love of the profession with the spirit of social responsibility. That is why the Army needs vocational personnel, mastered by the love of the military occupation and aware of its significance.

The association between an idea or image and the corresponding need leads to the formation of a belief. Usually, these are images with great social significance. The emotional implantation of the idea determines the military to act for its fulfillment, to feel it as an inner necessity, not to admit its contradiction and to defend it with all its might. Belief is a reason for supreme efficiency, it is an idea and a force. In this situation we can speak of a strong internal motivation, of a self-motivation even, in carrying out the activities.

From what has been shown, it results that each soldier has primary and secondary needs, motives, interests, inclinations, beliefs, going as far as defining a conception. It is clear that the motivational constellation is individual. No two subjects can have the same system of needs and motives. Then comes the fact that in this relationship with life situations, the motives persist latently or are activated. Practically our whole life takes place in a series of objective situations that respond or not to the needs, give or not satisfaction to our motives and interests.

Stressful psychological factors involved in military activity

In order to better understand the motivation of the military, it is necessary to review some psychological factors that can affect military personnel/combatants.

In general, stressful situations can be physical in nature (noise, temperature, floods, earthquakes, dangers of all kinds, etc.) and mental (fear, conflict, pressure, imminent death, etc.). Typically, any internal or external factor that exceeds (up or down) the limits of a certain threshold can become a source of stress, altering the behavior and mental activity of an individual. Stressful situations can be positive or negative, depending on the meaning assigned to them by the subject.

As military status is one of the most stressful occupations, we will highlight the main sources of stress that may occur during specific activities: poor quality of the mission preparation process, high degree of physical and mental stress of missions, possible dangers of carrying out activities with high risk or handling of weapons and combat equipment, low level of military order and discipline, prolonged state of relative isolation of the military, quarrels between the military, unresolved problems in the civilian environment from which they come, diseases, marriage, childbirth, inadequate work climate in subunits, abusive and irregular leadership style of commanders, insufficient equipment, water, food, accommodation and leisure conditions, etc.

Obviously, during combat missions, which the military performs in conflict areas, the superficial treatment or evasion of these stressors, which may manifest in this case, amplifies the tension, reduces the resources available to overcome this mental phenomenon and substantially reduces the effectiveness of military actions.

Among the specific situations of the theater of operations in which the military contingents were deployed and which are stressful factors, our opinion is that the most important are the following:

- awareness of the increased lethal power of modern and extremely sophisticated weapons from the endowment of the enemy;
- noise and agglomeration of an unprecedented level in the deployment areas as well as the terrifying image of the area where the missions are carried out: civilians dead, wounded, maimed, destruction of all kinds, etc.;
- the vaguely defined, fluid combat space, which limits the possibilities of movement and orientation, practically not offering the combatants a real protection against the possible dangers on land, on water or in the air;
- missions in difficult field and meteorological conditions, which demand to the maximum or even exhaust the physical and mental resistance of the military;
- the danger of using weapons of mass destruction, suicide bombers, sniper machines or any other type of weapon that has not been used against them;
- missions and activities at night, as well as in conditions with low visibility, inactivity, isolation, monotony and boredom;
- inconsistencies and leadership deficiencies of commanders;
- short-circuited flow of information vertically and horizontally, which leads to a deficit of knowledge both about the situation in the area and about one’s own;
- internal conflicts between the sense of duty and the spirit of preserving personal integrity;
- the feeling of futility and helplessness in relation to the results of the fight, the disgust towards the fact that the man no longer means anything, being used only as a tool;
- the development by the enemy of intense actions of propaganda, psychological influence and misinformation;
- the use by the enemy of a wide range of means of combat, tactics and combat procedures that induce a high degree of danger for the soldiers against whom they are used;
- prolonged and stubborn resistance of the enemy, beyond the known/expected limits;
- diseases that are specific to the area of dislocation (malaria, sleeping sickness, etc.).

During life, the human being is faced with many barriers. He is often able to find solutions to overcome them and get out of extreme situations. However, there are situations and dangers that require him physically and mentally to such an extent that he does not have the ability to overcome them. Man reacts differently to the same events, but in different situations. It is necessary to know the factors that threaten the mental integrity of the military, so we can give them some reasons to do something, knowledge being a balancing factor. Through the mechanisms of psychic self-protection, each individual more or less consciously appeals to certain behavioral habits, which allow reducing the anxiety specific to combat missions.

The motivation of the personnel/combatant

Achieving the objectives and fulfilling the missions of the ground forces depends very much on the attitude and behavior of the human resource in front of the tasks that are influenced by the way they are motivated by the management.

Highlighting the importance of the fighter’s motivation during military action, I cannot help but discuss the action, from 207 BC, of the Chinese general Xiang Yu to achieve victory in the battle of Julu.

Xiang Yu’s army of 20,000 soldiers crossed the Yangtze River to attack the Qin dynasty’s armed forces. After crossing the river, the general ordered the boats to be submerged and the food rations destroyed, to force his troops to choose between dying on the battlefield and defeating the enemy’s overwhelming force of 300,000 soldiers. After nine engagements in battle, the result of motivating

Xiang Yu's soldiers was what he expected, namely the general's army defeated the forces of the Qin dynasty.

It is noteworthy that the Chinese general used the survival instinct of his soldiers and won the victory. This instinct is, in the previous situation, the reason that provoked and supported the triggering of the behaviors necessary to achieve the proposed goal, victory.

It is easy to understand that the example given is one taken to the extreme, but the basic idea is that by using certain methods and techniques that represent external factors, the individual can create the need from within, namely the motivation to act in a certain sense. It is important for the most significant positive results to be obtained so that the combatant might feel inclined to act in a certain way in order to be able to self-determine their acts towards the maximum use of the available resources, and the commanders or the organizations they belong to can act in this respect by implementing some arguments that give them reason to do/act in a way that lead to the emergence of the combatant's motivation.

From our point of view, the emergence of the combatant's motivation is essential in the conditions of a constantly changing confrontation environment and is much more effective than other methods of persuasion that can be applied to him. Identifying what motivates and stimulates the fighter leads to the implementation of measures, actions or external factors that ”give birth” to his motivation. Moreover, by resorting to these methods, in the end, the fighter will have a satisfaction of the work and of the effort made for the fulfilment of the missions specific to the structure of which he is part or with which he acted in the respective situation.

Conclusions

The more united a military structure is, the easier it can achieve its objectives for which it was created. The set of common rights and obligations of the military, as well as the environment in which they carry out their activity determine the creation of special service relations. These connections are encouraged in the system aiming at the birth of that kind of altruism which, in critical situations, can make the capital difference between victory and defeat.

Applying the right motivation to the members of a team/subunit leads them to use all their skills and abilities to achieve maximum effects, which contributes to achieving group cohesion or, as it is known in military language, esprit de corps. The cohesion of a military structure, a determining factor in achieving operational capability, is based primarily on the respect shown by each of its members to the rest of the staff, regardless of position in the military hierarchy, as well as on the internal motivation of each.

That being said, we can conclude that motivation is the essence of successfully fulfilling the entrusted missions. Moreover, as I have pointed out in this material, it is imperative that organizations and commanders identify modern methods of motivating to stimulate combatants so as to create those conditions that are essential and conducive to the fighter's motivation, leading to his contribution to a maximum level, fulfilling the specific missions of that military structure or of the military organization as a whole.

NOTES:

1 Gl. (ret) M. Orzeață, PhD, „Cheia succesului transformării organismului militar este omul”, *Gândirea Militară Românească,* no. 1/2009, p. 78.

2 *Ibidem*, p. 79.

3 [Romanian Academy – „Iorgu Iordan” Institutute of Linguistics], *Dicționarul explicativ al limbii române*, Univers Enciclopedic Publishing House, Bucharest, 1996, p. 656.

4 *Dicționar de psihologie socială*, Scientific and Enciclopedical Publishing House, Bucharest, 2002, p. 148.

5 *Dicționar de sociologie*, Babel Publishing House, Bucharest, 1993, p. 375.

6 Col. Vasile Marineanu (coordonator), *Manual pentru pregătirea psihologică și controlul stresului operațional*, Technical-Editorial Center of Army Publishing House, Bucharest, 2015, p. 26.

7 *Ibidem*, p. 78.

8 G. Arădăvoaicei, L.D. Niță, *Motivația și motivarea în mediul militar*, Academy of Higher Military Studies Publishing House, Bucharest, 1996, p. 20.

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THE EFFECTS OF STRATEGIC SHOCK ON THE MILITARY ENVIRONMENT

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Generally, the projection and the implementation of changes at doctrinal level mainly follow the pointed paradigm shifts generated by sudden and emphasized mutation of operational thinking. The technological capabilities possess double applicability, since they are generated and used mainly by the civil sector, while gaining utility in national security with an obvious influence towards military forces evolution and engagement, and, consequently, the pattern of war. The evolution of the human-technology relationship is due to the increasingly higher level of transfer towards machines of the sensorial features, the variability and the intelligence, together with certain decisional capacities.

Keywords: strategic level; technology; intelligence; evolution; military organisation.

In reply to the public opinion requirements regarding morality, legitimacy and damage constraints, the military specialists require new technological achievements. Accompanying their natural evolution, trends and needs are identified and, further, new concepts for the use of armed force are generated based on complex processes. Due to their obsolescence and large scale availability, other improvement requirements that may be graphically represented as a sharper helix are triggered.

The modern battlefield operations physiognomy is mainly constrained by the shocks associated to the technological impact and to the civil society reaction to military actions developed to attain the political targets. While armed interventions tend to restrain the winners' human casualties to the rate of peace-time accidents, the information clarity, cycle and destination are submitted in real time by the masses that can influence the flow of events. Throughout the transition between physical and intelligence fields, supporting modern and efficient armed forces is harder to achieve by the vast majority of the nations. Those who adapt to needs and situations will lead the volatile security environment.

Brief semantic history

During the two World Wars, the British John Desmond Bernal formulated the phrase "scientific and technological revolution"[1] with respect to the functions that science and technology represent within the society. He stated that science transformed into a "producing force"[2].

In the 80's, the American sociologist Daniel Bell proposed the phrase "post-industrial society"[3], which conducted more to a society that moved from a production-based economy to a service-based one. Gradually, the reality faced a systematized human relation-model and the compression of the time latency from between answer and question, between stages and even between processes as a whole.

Several other authors advanced their opinion regarding the socio-economic evolution. Among them, Zbigniew Brzezinski (1976) introduced the term of "technetronic society" [4], emphasizing the trend of reunification of the support offered to disorganized citizens, with minimal efforts, by means of what is known today as nanotechnology.

The new asymmetric threats determined the occurrence of a military revolution, also known as a technical-military revolution. It supposes "technical inherent non-exclusive transformations of the new war designs" [5] by which the high-tech armies are able to neutralize the enemy in a short period of time and with a minimum exposure, using appropriate intelligence.

The cyber battlefield is subjected to flexibility, robustness and operational viability of the network-based war strategic concept that "will transform intelligence into power, will increase the response capacity and the force engagement precision"[6]. The omni-relation to information may be identified

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not only from a precision or volume perspective, but also from the accessibility or operability perspective.

A modern information system is based on an information system as a primary structural part, whose share is in a perpetual evolution. The computer revolution involves an advanced information system, as a tool for easy access to information, but also involves drafting and circulation of new types of documents, adjusting the classic working procedures.

The society faced successive technological waves that overlapped the technological revolutions. This paper does not intend to deepen their research, especially since specialists did not reach consensus. It is interesting that their dynamics was not uniform for all the states in the world. ”Some states experience simultaneously the impact of two or three technological waves (Japan, the US, Germany, England, etc.), while others (from Africa, Asia, Eastern Europe – including Romania) lagged behind, marking an important and deep technological gap between countries”[7].

The strategic shock – defining elements and transcendent consequences

Nowadays, states avoid declaring war and, in case of opposite agenda, tend to use non-armed means in order to force the opponent to adapt its behavior and, eventually, to subordinate its will. An alternative to direct interference is the expectation, together with subversive employing an ethnic, religious and economic character and followed by the intervention under the cover of support, order reinforcement or humanitarian assistance.

The idea is taken from the economic model elaborated by Milton Friedman, a controversial personality with radical beliefs who influenced the economic evolution of numerous states within Latin America and Middle East by the beginning of this century. Former professor at the Chicago University, he established, together with his disciples, ”the panacea of contemporary capitalism tactics”[8], also known as the doctrine of shock. The economist’s beliefs were based on the discontinuous economic evolution and on the implementation of radical macroeconomic actions by the so-called shock therapy. He observed that “only a real or as-perceived crisis may produce real changes. When the crisis occurs, the adopted actions depend on the available ideas. This, I think, is our main function: to bring alternatives to existing political strategies, to keep them alive and perfectly functional until the moment when what is politically impossible becomes unavoidable from the same point of view”[9].

Without accepting this practice, it can be noticed that it interferes and is in accordance to the thoughts of omnipresent Sun Tzu: ”cut their roots, cover their sky, destroy their traditions, divide them, make them ashamed of what they are! Thus, there is no need to fight to conquer them because, as they, who are scared of what they’ve become, will beg you to come and save them from themselves!”[10]. This paper aims to identify causative and functional relationships that would augment the understanding, anticipation, prevention and countering capabilities necessary to counter the degenerative effects.

While certain researchers use both the terms of surprise and shock, this paper with mainly use the term of shock, based on the Romanian vocabulary, as the Romanian Explanatory Dictionary provides positive outcomes for surprise and unexpected. The paper studies the general, sudden and violent disorder, generated by various external stimuli and manifested by a physical and psychological imbalance related to shock. Furthermore, in comparison with the surprise, the shock occurrence probability is reduced, while its behavioral effects are radical and even violent.

A strategic shock can be explicitly triggered by a military action and, thus, generate a military effect. The shock may also be the result of a non-military action or of certain events that result in a military effect or response. The risks towards the national security can be conceived, but not foretold or completely anticipated. Therefore, such events are difficult to efficiently evaluate and plan.

The strategic shock overwhelms the regular understanding capacity, and the affected organizations are constrained to rescale their plans, their approach and even their main duties. Shocks differ from other sudden events of crucial importance in that they are unpredictable. Shocks are not adequately marked in the military and security strategies. Their genesis arouses a fundamental strategic disorganization for the functioning and even the durability of a national security system.

Sam J. Tangredi treats the strategic shock concept by means of military phenomenology, naming the events difficult to anticipate as ”wild cards”[11].

The first approach of the strategic shock within an institutional framework originates in Great Britain, in the document elaborated by the Joint Structure and Concepts Centre, ”Strategic Trends. Methodology, Key Findings and Shocks” (March 2003)[12]. The authors of the paper admit that ”a shock represents a major impact of an event with a low occurrence probability”[13], with manifested consequences towards the trust of the citizens in the alleged system.

The American Office of the Secretary of Defence (OSD) coordinated in 2007 the ”Strategic Trends and Shocks” project, assimilating and debating the strategic shock issue. The new concept was characterized by ”an event that interrupts the evolution of a trend, a discontinuity that either accelerates rapidly the pace, or modifies significantly its trajectory, and, in this regard, undermines the hypotheses under which actual policies are built. By their nature, the shocks are disruptive and are able to shift our way of thinking on security and the role of the armed forces”[14]. It can be noticed that, according to the shock doctrine analyzed by Naomi Klein (2007) and adapted to the present military science, that the directive line outlined by Milton Friedman is maintained.

Strategic shocks have been debated presumptively also by Nathan Freier (2008) in the following manner: ”the future disruptive, unconventional shocks are unavoidable. Through the strategic impact and their disruption and violence potential, the unconventional shocks to the relevant defense, despite their non-military nature, require attention focused on the management of defense, together with, in response, a critical decisive engagement of the defense capabilities”[15]. The origin of contradictions between national or interstate interest groups may reside in rugged or hybrid catastrophic threats, analytically approached by the same Nathan Freier as being ”of purpose” (generated by hostile intention) or ”in context” (without adverse intention). The contextual threat conceals the most unknowns, as a consequence being the most dangerous.

In the context of unpredictable changes of the current or prospective security environment, which includes multiple factors conditioned, in turn, by the fragility of the balance of regional authority or the sphere of globalization under its many sides (political, military, economic, demographic, cultural, social, etc.), judging in classical terms towards security and social defense, it is difficult to predict an effective and adequate response to the new dangers and vulnerabilities generated by the velocity and diversity of the processes that individualize this turn of the century.

The strategic impact determined by the international relations dynamics and the use of force by state or non-state actors for imposing a position creates the premises of a disruptive potential. Therefore, a raise is noticed in the interest on an early identification of the disruptive origins and consequences, which can lead to the assignment as strategic shocks.

Nowadays, the nuances of the strategic shock are extensive and comprise the emotional and systemic structural areas, as they generate dramatic degenerative effects. Strategic shocks jolt the traditional conventions and constrain damaged institutions to essentially redirect and reorient their approach on the new fundamental missions or investment policies. Their genesis ”suddenly cancels part of or all preexisting hypotheses regarding the environment and those conventions governing human activities”[16]. The national security and the military institution, directly grounded and interrelated to the public society activities, cannot be eluded in the aforementioned context.

The mixture created by the globalization geopolitical context, by the quasi-unhindered movement of people and by the emulation on using informatics systems on all cycles of social life, represents a favorable environment for building the contributory factors of the strategic shocks embodiment.

Also, the strategic shock encounters optimal occurrence conditions when a series of conditions are cumulatively satisfied:

- the occurrence of a dangerous conglomeration of clues unknown to the investigators, often directed by bold judgements;
- the absence of the mental capacity of the authorities and the masses to distinguish between normal and abnormal;
- inflexible institutional organization.

Joint together, these situations may lead to a disposition similar to strategic paralysis and to an insufficient or absent reaction to the triggering of a disaster.

It can be concluded that a strategic shock represents a major event which, by the induced effects, requests a different approach on the way to live or on the social and economic evolution of a nation, by national, regional or global perspectives.

To accurately define the strategic shock parameters implies being close to its evaluation or anticipation, whereas predicting its characteristics and implications would mean that the alleged events will no longer represent shocks. A high impact strategic shock depends on the framework it is triggered and evolves on. The consequences are immediately visible in the case of a national territory aggression, or may be felt after and during a variable period of time, occurring successively in unintended dynamics.

Until last decade, a stringent analysis of strategic shocks was not included by the West-European and North-American states within the documents governing defense and national security, as the probability of such indirect phenomena that can alter their existence as independent states was eluded. Instead, different vulnerabilities, risks and threats that may disturb national security as territorial integrity or social-economic and cultural impact were briefly described. General statements imposed themselves over direct and concrete formulations. In this regard, it is appropriate to trigger the prediction efforts in a multidisciplinary investigation of the shock's features, taking into account the possibility that strategic shocks may occur. Therefore, courses of action and force to follow are necessary to be indicated for a correct and efficient response so that the risk generated by such events against the community is minimized.

The approach of the strategic shock problematics is personally appreciated as a niche within the current knowledge stage of inland military sciences. Thus, there could be identified the need of an anticipative and rigorous summative presentation of the evolution path followed by the military phenomenon in order to underpin the forecasts of multiannual security strategies.

The influence of the strategic shock on the contemporary military operations development

The more and more expressive polyvalence of the present world and the solicitude towards its metamorphosis reclaims a reconsideration of the statistical, individual or closed group action methods within the society assembly. The current global conjuncture is built so that an important event happening in a part of the world may generate cascading effects worldwide, within smaller and smaller latency gaps, all over the world, the virtual area having a meaning related to the real one. In the current global environment, the non-state vectors get similar in importance to the state vectors. Precisely from this relation, which may sometimes be conflictual, there may result disputes and differences, technological leaps, philosophical, ideological and cultural disputes that may generate major effects on the behavior of individuals and of the society; as a consequence, paradigm shifts in various domains, mainly induced by the informational society, by the strive between modern and traditional or by other elements based more on revolution than on evolution will become major sources for the future strategic shocks.

The Italian general Giulio Douhet (1869-1930), actively involved in the First World War, manifesting a genuine futuristic impudence, appreciated that ”victory smiles upon those who anticipate changes in the characteristics of war and not to those who wait to adapt after these changes occur” [17].

Nowadays, the limits of the strategic shocks are relative to intensity and magnitude. The same unforeseen event may leave some indifferent or may radically shake others, due to plenty of variables necessary to be identified and dealt with.

As Colin S. Gray emphasized, ”the challenge to defense strategists and planners is not to avoid being surprised, but is to plan strategic actions in order to efficiently respond to some of the most serious effects of surprise” [18].

Within the range of all-time strategic shocks, certain military analysts[19] anticipate that the most plausible and, also, the most dangerous ones will be atypically structured, meaning that they will not emanate from the enemies technological differences, but comprising features and procedures that will overshadow conventional military thinking. Future conflicts will come from non-military germs and will reverberate into contradictions between states or interest groups. Their ascendance resides in irregular, disastrous or ”of scope” and ”of context”[20] hybrid threats, which occur when targets or countering reverse actions, are missing. Out of these, Nathan Freier assesses that the ”contextual” threat is the most serious and complicated, raising great challenges with respect to its decoding.

Contemporary military actions, probably with isolated exceptions for the totalitarian regimes, cannot be triggered only by the simple will of the supreme leader. The politic decision must be supported by the civil society. Any decisional slippage for declaring wars is penalized, sooner or later, by street movements, by popular voting or by the international organizations. Today, more than ever, the civil society, that becomes more and more aware of its participation in the budgetary and ideological support, keeps being interested in the evolution from the theaters of operation and becomes sensitive especially in comparison with human expenses.

While during the Soviet ballistic missile offensive in Cuba in 1962, transistor radio allowed the ordinary Westerner to sequentially connect with overseas events, during the Vietnam War of 1965-1973 the televised image became predominant. Gradually, a strange phenomenon that occurred, known as the ”CNN effect”, emerged during the First Gulf War in 1991 and was amplified by the Balkan conflicts during 1991 and 1995.

Therefore, the whole informational spectrum became exploited by the directly involved states mainly through the political class and, secondly, by the specialized military structures, according to the current agenda. Even mass-media took advantage of the emotional state of the masses and depicted the events in a spectacular and marketable manner, in order to increase the audience and, consequently, the income. The outcome of mass communications keeps raising controversies from the standpoints of objectiveness, opportunity and actor-director dichotomy within the phenomenon. The obsessive idea that justice stands on the side of the many and the independent becomes preeminent based on their exhaustive information.

Basically, the actors presenting transparent theories, with established precepts within the limits and the spirit of international humanitarian law, are opposite to the ones that apparently lack in doctrines but address fanaticism fed arguments and excesses manifesting ethnical, cultural and religious etc. connotations. Therefore, a new important actor of the military operations is outlined: the civil population. Paradoxically, in the belligerent zone, civil population tends to become a potential victim of the violence generated by combatants that lack a transparent doctrine, while the humanitarian support and physical protection get to be provided by the adverse military structures. Also, in the scenario of a lasting conflict, the civil population transforms in a combatants’ regenerative well, sometimes with the unusual participation of women, children or elder population. Any error, slippage or force excess towards the civilians is blamed by the opposite side and is exploited as a motivational factor within further operations, as a catalyst agent having critical support in approaching the posterity over-issues.

One may say that the main challenge of war actors as political or military decision-makers is to hold control over the popular masses, to gain their sympathy, will and support. While, after the Vietnam War, the American public opinion rejected anything related to armed conflict, soon after the 9/11 terrorist attacks it strongly supported, at least in the beginning, any means for punishing and eradicating the terrorist phenomenon. An exaggerated emotional attitude was reached so that even the possible American military casualties were seen as fully legitimate. A shift in the sensations, perceptions and representations was noticed within the civil society in relation to the military phenomenon, shift that generated ”the transformation of the public attitude towards the armed forces and war itself, a transformation as a less permissive perspective towards the use of force”[21].

The main scope is the capitalization of the strategic shocks’ potentiality to channel the thinking of the masses in a way favorable to the one who intervene. It is not based on violent measures enhancement and on imposing the will, but speculating or making an unbalancing conjuncture and then raising false solutions. Therefore, the action takes place prior to the classical war paradigm. If, within its frame, the justice was on the side of the most powerful, the winner’s, it looks like, within the contemporary frame, the legitimacy of actions belongs to the one that benefits from the masses adherence, though prior the effect. Controlling the consciousness of the masses, the tactical and operational supremacy is maintained.

Nowadays, real military operations are made so that military intervention features a surgical accuracy, it is fast and, essentially, it brings solutions with an immediate impact in order to enhance the living of the domestic nation. Classical military operations come together with concrete measures for regenerating the affected society as part of certain rigorous planning.

According to the model conceived by Milton Friedman, developed societies tend to create scenarios in their own interest that can be promptly applied to the targeted societies. The weakness signals will be channeled and amplified so that they pose a benefit for future strategic approaches. Each disaster will be artificially amplified and charged in a propagandistic manner so that the reaction of the masses serves the concurring element's interests. In case that the events do not follow the desired path, immoral solutions of veiled interference can be applied. If these false issues cannot be discovered, informational techniques are being imagined and applied, that will generate reactions which should also be treated as inacceptable. War becomes an unfair approach of a counterfeit and bombastic theme hidden under the mask of humanitarian support.

Military structures act in order to accomplish certain clear and publicly-stated strategic objectives, which condition both the timeframe and the intensity of an operation, and also the post-conflict tasks from the field, the tensions mitigation strategy and how to restore the institutions of major interest. Opposite to the previous, the fundamental objectives aimed by non-state actors will be elusive, unconfessed, materialized by fanatic instigations, directed towards the instauration of disorder, of continuous resistance and the thwarting of applying the potential stabilizing regulations. The objectives to which combatants aspire are polarized. The belligerents are heterogeneous numerically, in training or equipment and their motivation is ambiguous to their own communities. That is why military operations become vulnerable in the frame of international legislation or traditions.

Albeit precisely defining strategic shocks is difficult, certain analysts[22] noticed that, sometimes, strategic shocks are like repetitive models shaped as a revolutionary wave. Studying the social dynamics from the North-African countries, J.N. Nielsen observed that the shock produced by the worries in Tunisia degenerated in the neighboring states, propagating like a tsunami wave to the Middle East security space and with consequences still up to date. A singular strategic shock aroused a shock wave that affects the fragile arrangements, acting like a pressure force towards them. States subjected to the shock wave are sentenced to react, under the pressure of the international community, leading most of the times to collapse, as demonstrated in Tunisia, Egypt and Libya and during reissue in Syria.

The assertion of LTG Robert Fry, the former deputy commander of the Iraq coalition, is remarked with respect to the future strategic shocks: ”I have no idea which would be the next strategic shock. It may be the collapse of the European currency, or something connected to the human genome research, or an attack of Israel against Iran, 'supported' or 'encouraged' by Saudi Arabia or by the Gulf states (author's note Persian Gulf), or it may be something related to North Korea. I have no clue about what it will be. The only thing I am convinced of is that another strategic shock will definitely occur”[23]. It may also be mentioned a possible natural cataclysm, indicated by the tectonic activities and by the reactivation of certain volcanoes, or even a possible armed conflict within the South China Sea, pointed by the recent edification of the artificial islands surrounding Taiwan and its risk of isolation by China. As a consequence of their technological capacities for producing and deploying such arsenal, Iran and North Korea's nuclear related issues will be treated subsequently throughout further research.

In the economy of the analysis of future strategic shocks, it is important to emphasize that modern society benefits from a substantial technological advance focused on information systems, found in various products and services such as communications, autonomous systems, transport or data manipulation. A relevant part of the new technological conquests also finds applicability in the military area, an aspect that gives rise to a series of conceptual, normative and operational problems regarding the possibility of determining clear limits of their use and development frameworks and, inductively, in terms of the eligibility and consistency of current strategies in proportionally assessing their ability to generate new strategic shocks. Consequently, the preponderance of information systems in public infrastructure and their complexity determine an increased attention to the impact they can exert on the configuration of modern warfare and, implicitly, of shock, from the perspective of humanitarian and strategic risks that may arise.

The information system

As any other organization, the military organization consists of a logical structure with a functional and pyramidal hierarchy which is set based on a coherent ground, as a network and in symbiosis. In the current environment, the network-level organization is essential, due to its high flexibility. Therefore, an information system may be defined as a systematized gathering of people, programs, equipment, communication networks and data funds which collect, modify and distribute information within an organization.

The overall systemic activities flow from the conjugated action of the command (decision-making), operational (executive) and informational (liaison) subsystems. Organizations ”treat streams of materials and streams of information in order to achieve the goals imposed by their activity” [24]. All subsystems may be decomposed, in turn, in other subsystems that work together in order to assure and maintain the global functioning of the organization.

The information system provides elements for acknowledging the way phenomena and socio-economic processes develop within an organization. This helps to the evaluation of certain situations and to the identification of their causes, representing a support for the deciders placed at each hierarchical level. Also, it provides an operative and proficient step in structuring and channeling the activities and in the appropriate execution of the control function when applying decisions.

Informatics systems contribute to the increasing degree of operationalization in acknowledging the board and all-levels decision making, to diminishing the amount of documents, of written correspondence and to the efficient use of highly qualified human resource by unchaining it from routine tasks.

Automatic data processing is essential at all hierarchical levels and in all executive steps, with the capacity to provide the simplification of tasks and the improvement of informational procedures, to assist and support the command act and, also, the decisional process.

Whereas the decision belongs to human beings, the information system is empowered to provide all useful elements and to allow for an optimum resolution based on clear and complete information. Also, it may be used scholastically, as an instrument for simulation, providing a swift evaluation of the decision’s consequences and the adoption of the most effective one. Therefore, ”informatization may objectively comprise only those parts from the information system that are formalized by defining transformation functions of inputs into outputs” [25].

The physical integration of information is made by a computer network that provides the repartition of the stored data into subordinated entities. As a result, the integration directs to architectures of hierarchical informatics systems, where real time interactive processing and their allocated storage become more and more important.

Digitalization and technological dependence

An increasingly common phenomenon in high-tech confrontations, as an effect of technological evolution, with an impact on the course of military actions, is digitalization.

The integration of the entire equipment, of the means of communication and systems for the forces, along with the exponentially increasing volume of information and also the need to process them generated difficulties in interoperability. The first major such problems were reported by the US military as a result of the campaigns in Panama and Grenada in the 1980s. Following the identified vulnerabilities, the concept of joint action was debated and developed.

The implementation of digital technology in the military phenomenon occurred as it interfered with the entire social environment, as an adaptive reaction of the system towards streamlining the activity, increasing transmission accuracy and archiving capacity, but also increasing performance as costs decreased. The quality of internal processes in the Major Staffs led to the registration of qualitative changes, especially in terms of information and operational superiority.

Access levels can be given to the database. Access authorizations are managed in such a way that they can be debated, updated or consulted with the allocation of minimum resources. The main beneficiary of the synthesis of information, the staff officer, may express a greater freedom of action. Automated assistance gives the staff officer the opportunity to channel his energy and attention to the really relevant things. Access to explicit information in the tactical field allows the creation of a significant time advantage, as the user has the opportunity to quickly, coherently and completely assess the tactical situation, to debate on the conclusions and transmit them quickly even in graphic, explicit form.

Practice has shown that a considerable part of digital information in the electronic environment is not of considerable relevance, so a key requirement is its synthesis prior to the submission of the commander's decision. The swift solution is all the prerogative of digital technology, as information at the limit of relevance can be easily attached or removed. Conversely, the commander's intention, in letter or graphic form, may be transmitted digitally within the secure internal network so that reception by authorized personnel is instantaneous and unaltered. In other words, ”the digitization (computerization) of the fight will not deprive the commander of responsibility and the need to ensure freedom of action”[26].

A major concern at NATO level regarding digitalization is proved by the existence of the declared function of the Digitalized Battlefield within NAAG[27]. In this framework, technical protocols and procedures are calibrated under the tutelage of the interoperability of terrestrial systems. However, the applicability of this desideratum is at least debatable, as it counters the interests of commercial giants struggling to maintain their intellectual property protection and supremacy on the market.

Scientific and technological development is, indisputably, not only influenced, but also controlled by the political factor. On the other hand, the physiognomy of war is regulated by technology. Researchers in the field estimate that ”approximately 400 technologies have a dual use, in the civilian and military fields [...] especially in the aerospace area”[28]. The new technology is a technical and moral advantage to the detriment of classical technologies. Given that the major confrontations over the last two decades have taken place between disproportionate forces in terms of technological capabilities, it is difficult to imagine a physical conflict between similar opponents in terms of endowment.

The natural question is whether the computer network is not too exposed to an attack on electricity supply, given that its overall energy autonomy is relatively low. When a force has an overwhelming technological advantage, it is difficult to close the development gap. Under such conditions, concerns will be directed at cancelling superiority by speculations on vulnerability. Thus, the channeled interest towards the improvement of new destructive means, such as those that generate the electromagnetic impulse, which could neutralize the advantage of strongly or fully cybernetic armies, becomes logical.

The role of information technology in military actions

In the past, the fate of the classical war, in empirical form, required intuition and experience from the commander in the perception of the conflict field, the interpretation of the situation, the issuance of the decision and the transmission of orders to the fighters. Technological progress has left its mark on the military organization, directly influencing all the processes of the commander's prerogative and, consequently, challenges the outcome of the conflict.

The implementation of information technology in the military system is a gradual, unstoppable process. This does not imply, in any case, the complete elimination of the need for the physical presence of the military in the battlefield.

The command-control process is improved by interconnecting the means of communication, storage and interpretation of data, it facilitates the decision and reduces the time of transmission of orders. The accuracy and amplitude of the information provide an objective overview of the tactical situation. The advent of the electronic computer has allowed the automation of procedures in the field of command and control system.

Connections between computers gave rise to networking and later to computer systems, which in turn were integrated into communications and computer systems. The latter facilitate the conduct of military actions, by assembling human intelligence with artificial intelligence.

The decision-making process gets automated technical support through easy and precise relationship, both horizontally and vertically. Thus, the objective and detailed information of the commander and the staff under his command allow:

- elaboration of the optimal decision and knowledge of the implications in full;
- channeling the tasks and energy of the engaged personnel, from the field of routine in that of data interpretation or parameters and in that of conception;
- objective management of military structures, based on accurate, complete and timely information;
- simplification of document drafting;
- systematization and standardization of operational documents;
- increasing the speed of data processing, analysis and interpretation, inversely proportional to the required response time of the command and control system;
- emanating the algorithms of the usual activities;
- elimination of latency times in the information circuit, facilitating reasonable decision-making times.

Information technology in the information age creates opportunities for optimization in terms of organization and endowment of forces. Equipment for interception, storage, alerting and prompt dissemination of information has self-improvement capabilities. High-precision weapons, connected to the computer, determine the increase of combat power, which was proven in theaters of operations. The connections between the sensors on the military and surveillance equipment helped to reveal the broad spectrum of the combat space and to secure communications between the elements of the force.

Under the impact of new technological capabilities, the content of command and control processes is not expected to change substantially, ”since it is directly related to the nature and structure of human thinking”[29], but the speed of processes will increase as communications and computing systems develop. It is estimated the evolution of a range of ”human-machine interaction technologies (along with the necessary physical devices) that increase the speed and efficiency of user-computer interaction”[30]. This involves computer programs for recognizing handwriting, voice, and physiognomic characteristics with the help of unobservable receivers, 3D graphics or virtual reality.

The influence of information technology on the structures of the Armed Forces

Modern technologies, aggregated with the efficient use of information, provide individual as well as collective benefits, whether subunits, units or large units are concerned. Own forces are able to detect danger in advance and will easily access the real operational environment, including the allies’ or the opponent’s. They offer the potential to emit a considerably wider range of effects, focusing on the means of combat necessary for the concrete situation. Thus, the own forces will have specific reactions in agreement with the objectives of the mission and the circumstances of the combat space. Technological benefits are also reflected psychologically, influencing the level of confidence of combatants through connectivity between individuals, subunits, support elements or hierarchical commanders.

From this point of view, technologies increase the organizational advantages based on initiative, adaptability, teamwork and morale.

In order to capitalize on the amplified potential of new technologies, it is necessary to bring the own forces and means closer to the future characteristics of military operations, by examining the diversity and complexity of recent history, of the present and of evolutionary trends. The consequences will indicate the limitation of the probability of sustaining operations of a single type. Combinations of means, procedures, tactics or even strategies will be found. It is considered that, as the situation in the tactical field evolves, an initial operation of a certain type will metamorphose or combine with others. Hypothetically exemplifying, a conventional response operation will turn into asymmetric actions, using specific counterinsurgency or counter-guerrilla procedures, simultaneously with evacuation, stabilization, transition or reconstruction operations. The conjectural complexity reaches its peak in the case of hybrid warfare, when several types of operations are highlighted throughout the conflict.

The approach of the plural-valence of military actions executed in a complex operational climate conditions the presence of force structures corresponding to the entrusted missions and objectives. Tadeusz Kotarbinski’s concept of efficiency, which he called ”effective an action that leads to an intentional effect as a goal” [31], is back in vogue.

The information technology gives the military structure the action efficiency according to the parameters at which the proposed goals were expected to be achieved. It requires, first of all, the acquisition of the operational advantage through its performing constituents. The kinetic (physical) component loses its main role in achieving the objectives. The non-kinetic components, represented by psychological, media, informational or cybernetic operations, are placing their mark on the efficiency of military action.

Future military actions imperatively require the design of an organizational and functional balance between the physical components (maneuver, support, impact, protection) and the non-kinetic ones.

But the kinetic component also tends towards super-technology, for the same fundamental purposes of preventing the destruction and own losses, and more recently that of limiting the civil ones of the opponents. In the same context, the non-kinetic component aims to acquire information superiority that would confer operational benefits of physical abilities. The optimal ratio between the holistically analyzed components must contain the ISR module (information, surveillance, research).

Efficiency is based on the accuracy of the operation of complex systems of discovery, research, identification, selection and engagement of the essential targets of the opponent. The accuracy of the armament systems is analyzed in relation to the desired effect on its centers of gravity.

Combat and logistical support, interpreted as multilateral force support, is dependent on efficient computerized technology during military actions.

Final considerations

This paper, the results of which were obtained through the competition of methods that include the stages of documentation and analysis of primary sources of information, as well as the phases of induction and deduction, outlines the potential implications of triggering strategic shocks, whose probability of occurrence is amplified by technological advancement specific to the contemporary period, on the military environment, seen as the set of decision-makers and execution with the role of ensuring state security. From this point of view, the evaluation of the implications of the new technological conquests with applicability in the military system constitutes a challenge of global interest, as a result of the radical changes that emerging technologies with development potential may have on the doctrine, on the combat tactics, on the international human law, and, last but not least, on the society as a whole.

The pillars required for the development of the military structure and for the transformation of the configuration of the armed combat are: the expeditionary character of the forces, the high-tech capabilities, the integration possibilities and the interconnection potential of all components that contribute to ensuring national defense and security. The implementation of hardware and software resources in the human resources of the forces is a natural phenomenon in the current situation, with successive effects on the strict specialization of the military and eloquent information products.

It may be concluded that, as a rule, doctrines, concepts or educational processes are adapted following the technological revolution, as they are based on the conquests of the latter, but evolutionary estimates acquire special significance, as they reduce the response time to what causes the reaction. Current strategies to ensure, maintain and strengthen national, regional and international security, built on the paradigm of conventional conflicts, need to be improved in order to be effective in preparing for resilience against shock in the context of development and use, with increasing input, of new, unconventional emerging technologies, the nature of which inherently places them in the category of dual-use items.

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ROLE AND PLACE OF THE INTERNAL PUBLIC AUDIT IN THE MINISTRY OF NATIONAL DEFENCE WITHIN THE MANAGEMENT SYSTEM OF THE PUBLIC ENTITY IN THIS MINISTRY

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In this article we set out to highlight, first of all, the characteristics of the internal managerial control system in the Ministry of National Defence, as one of the resistance pieces of the entire managerial mechanism in this structure of public administration. In order to understand the whole control mechanism and its effects on the final results of each organizational structure in our army, we stopped in our research on certain connections that exist among the management system, the internal management control and the internal audit for the evaluation of the internal managerial control in these entities. The final part of our article is dedicated to the presentation of the ways to perform the initial evaluation of the internal managerial control and to follow the implementation of measures in this field by the internal audit. In this area of research undertaken by us, we have formulated certain solutions to improve this activity in the future in the Romanian Army.

Keywords: internal managerial control system; internal managerial control; managerial internal control standard; internal public audit; insurance mission; significance threshold; statistical survey.

Characteristics of the internal managerial control system in the Ministry of National Defence

The management system in the army entities has as a very important component the internal managerial control system. The latter is regulated, in turn, by the *Order of the Minister of National Defence no. M.100 / 2019 for the approval of the Methodological Norms regarding the internal managerial control system in the Ministry of National Defence*[1] and is organized so as to ensure the achievement of the following three categories of permanent objectives: effectiveness and efficiency of operation; reliability of internal and external information; compliance with internal laws, regulations and policies.

The internal managerial control system[2] is an integral and essential component of the management of the institution that covers the entire activity, having a huge impact on the credibility of a government and the operations it carries out. The internal managerial control system is a commitment undertaken by Romania in Chapter 28[3], *Financial control of negotiations with the European Union.*

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Conceptually, the internal managerial control[4] represents the set of forms of control exercised at the level of the public entity, including the internal audit, established by the management in accordance with its objectives and legal regulations, in order to ensure the administration of funds economically, efficiently and effectively; it also includes organizational structures, methods and procedures. The phrase "internal managerial control" emphasizes the responsibility of all hierarchical levels to keep under control all internal processes carried out to achieve the general and specific objectives.

This control system is organized within the ministry based on the following principles[5]: the principle of legality; the principle of adaptability; the principle of integrity; the principle of uniformity; the principle of finality; the principle of efficiency; the principle of effectiveness; the principle of economy.

In order to monitor, coordinate and methodologically guide the implementation and development of the internal managerial control system, the ministry sets up and operates, depending on the hierarchical level, the following commissions[6]:

- At the level of the ministry, the Monitoring Commission of the Ministry of National Defence;

• at the level of the structures of the ministry whose commanders/heads have the quality of authorizing officers, monitoring commissions in the field of internal managerial control;

• at the level of the structures of the ministry whose commanders/ heads do not have the quality of authorizing officers, a person in charge of monitoring the implementation of the internal managerial control standards is appointed, by agenda per unit.

The monitoring commission of the ministry is composed of: president – the deputy secretary general of the Ministry of National Defence; members.

The members of the Monitoring Commission on the ministry[7] are persons who perform important functions at this higher level, namely: the director of the Defence Staff; deputies of the heads of departments and directions from this basic structure of the ministry of defence.

The monitoring commission of the ministry has numerous attributions, of which we mention a few[8]: it monitors, coordinates and methodologically guides the structures of the ministry in the field of internal managerial control; it elaborates the Development Program of the internal managerial control system of the Ministry of National Defence and submits it for approval to the Minister of National Defence; it coordinates the process of updating the general and specific objectives by the structures of the ministry; it analyses and prioritizes significant risks, which may affect the achievement of the ministry's objectives, by establishing the risk profile and the risk tolerance limit.

At the base of the activity of these persons with important management positions are, according to the *Order of the Secretary General of the Government no. 600/2018*[9], the following 16 standards of internal managerial control: Standard 1 – Ethics and integrity; Standard 2 – Duties, functions, tasks; Standard 3 – Competence, performance; Standard 4 – Organizational structure; Standard 5 – Objectives; Standard 6 – Planning; Standard 7 – Performance monitoring; Standard 8 – Risk management; Standard 9 – Procedures; Standard 10 – Surveillance; Standard 11 – Business continuity; Standard 12 – Information and communication; Standard 13 – Document management; Standard 14 – Accounting and financial reporting; Standard 15 – Evaluation of the internal managerial control system; Standard 16 – Internal audit.

Internal managerial control standards define a minimum of management rules that all public entities must follow. The purpose of the standards is to create a uniform and coherent internal managerial control model, which allows comparisons between entities of the same type or within the same entity, at different times, and to make it possible to highlight the results of the entity and its evolution. The standards constitute a reference system in relation to which the internal managerial control systems are evaluated, the areas and directions of change are identified.

In the process of implementing the standards of internal managerial control, two obligatory stages are followed: the stage of self-evaluation, performed by commanders/ heads who have the quality of authorizing officers; the stage of evaluation, performed by the internal public audit structure of the ministry.

For the self-evaluation of the internal managerial control system, the structures of the ministry whose commanders/heads have the quality of credit officers go through, mainly, the following stages: convening the monitoring commission in order to self-evaluate the own internal managerial control system; completing the self-assessment questionnaire of the implementation stage of the internal managerial control standards; elaboration of the synthetic situation of the results of the self-evaluation and appreciation of the degree of conformity of the own internal managerial control system with the internal managerial control standards, in relation to the number of implemented standards.

Connections between the management system, the managerial internal control system and the internal evaluation audit of the internal managerial control

The public internal audit structures ensure the independent and objective evaluation of the internal managerial control system of the ministry structures.

For the substantiation of the Annual Report on the internal managerial control system, the following responsibilities are established at the ministry level: the structures of the ministry audited by the internal/external public audit structures in the field of internal managerial control transmit to the General Secretariat, within 30 days from the end of the audit mission, the main recommendations formulated in the public audit report, as well as the main measures in order to implement them; The Internal Audit Department submits to the General Secretariat a summary of the main findings in the field of internal managerial control, as well as elements considered relevant in the program and activity of the audit structure, until January 25 of the following year, for the previous year.

The entire management system and the two auxiliary components (internal managerial control and evaluation of this control by internal audit) at the level of all entities in the Ministry of National Defence cover a whole set of documents and responsibilities: strategies; strategic plans; procedures; manuals; internal regulations; structural projects; records; rules; appointments of persons with certain attributions; establishment and revision of management documents; quantitative and qualitative performance indicators; controls; measures/plans, etc.

In this carousel of documents, the persons with managerial role must elaborate the reference documents, to organize their dissemination to the basic level of execution, to evaluate through periodic controls, on hierarchical levels the fulfilment of all managerial orders and dispositions, to issue provisions for the correction of non-conformities and to ensure the continuity of the activity of each structure of the Ministry of National Defence.

The internal managerial control system is meant, through the entire set of standards and related procedures to help individuals and groups with an important role in this field not to omit any detail of the large and complex managerial process, in which in one way or another the whole staff is involved.

In turn, the internal audit, through the missions they perform and in which they evaluate the internal managerial control, is constituted as an additional filter, an external eye (along with the external public audit of the Court of Accounts) to supervise the managerial process, by which certain non-conformities are notified and by the recommendations made to contribute to the improvement of the managerial act.

It is appropriate to point out in this part of the article the stages of the evaluation of internal control by the auditors of the Romanian Court of Accounts, from the perspective that internal auditors must be inspired and guided in their work by the experience and practice of this supreme public audit body in our country.

In the process of evaluating the internal control system, external public auditors must go through the following steps: knowledge and understanding of the entity and its environment, including internal control; estimating the internal control risk; testing of internal control mechanisms (control tests). In order to carry out this assessment process, the external public auditor must carry out risk assessment procedures. These are audit procedures performed to gain an understanding of the entity and its environment, including the internal control[10].

According to *ISSAI 1315*, ”Identifying and Assessing the Risks of a Significant Error by Understanding the Entity and Its Environment” states that: ”The auditor must gain an understanding of the internal control relevant to the audit activity. The extent to which an audit, individually or in combination with others, is relevant to the audit action depends on the auditor’s professional judgment”.

This guidance, which refers to external public auditors when seeking to identify and assess risks through understanding the entity and its environment, is also appropriate for internal public auditing, who must also go through such a step in assessing internal control in the public entities they audit.

We will point out from all 3 stages only the one that refers to the types of procedures used by these auditors to test the functioning of the internal control mechanisms at the externally audited entities. In practice, four types of testing procedures are used, namely: questioning the employees of the entity; examination of documents, records and reports; it is used for the control mechanisms that are materialized in the documents; observation of the control activities; it is used for control mechanisms that are not specified in the documents; reconstitution of the entity’s procedures (assumes that the auditor restores the control activity)[11].

Following the evaluation of the internal control system in the audited public entity, the external public auditors conclude whether it has been designed and operates in accordance with legal requirements, awarding ratings (very good, good, satisfactory, unsatisfactory).

Internal public auditors, including those in the Ministry of National Defence, must consider and apply (with the necessary customizations required for such an audit) these steps and procedures, which are of great refinement and essence and ensure their compatibility with the activity of the external auditors, whose mission is to evaluate their activity as well.

Ways to perform the initial assessment by the internal audit of the internal managerial control and to follow the implementation of measures in the army entities

Next we will point out some significant elements through which the public internal audit evaluates the internal managerial control and the way how, through the tools and procedures specific to this activity, it detects non-conformities and makes appropriate recommendations for the managerial act in the army entities to perform as well as possible.

As it is known, according to GD no. 1086[12] of 2013 for the approval of the General Norms regarding the exercise of the public internal audit activity, the assurance missions are performed in accordance with the types of internal audit regulated by law and can be: regularity/compliance audit missions; performance audit missions; system audit missions.

Based on this normative act, the customization of the internal audit missions in the army was carried out by the Order of the Minister of National Defence no. M67 from 17.06.2014[13].

The internal public audit represents, for the military field, the functional-independent and objective activity, of insurance and counselling, designed to add value and to improve the activities carried out within the Ministry of National Defence; the public internal audit helps the ministry leadership, audited military structures, and units to achieve their objectives through a systematic and methodical approach, it evaluates and improves the efficiency and effectiveness of risk management, control and governance processes[14].

An assurance mission in military entities, regardless of the type of audit used (regularity/compliance, performance or system) involves several moments or stages: mission preparation; on-site intervention; reporting internal audit missions; following the recommendations.

This normative act brings several novelties compared to the previous regulations, but we point out some of them related to the issue of evaluation by internal audit of internal managerial control and which were highlighted by specialists from the Internal Audit Department of the Ministry of National Defence.

A first issue of novelty refers to the implementation of the missions of evaluation of the internal public audit activity, which represents a step forward in terms of ensuring a quality audit, given that this activity aims to provide an independent and objective opinion with on the degree of compliance and performance achieved by the public internal audit department, in order to formulate corrective recommendations and/or to contribute to increasing the efficiency and effectiveness of the public internal audit activity[15]. According to this new provision, the Internal Audit Department must carry out this assessment through periodic verifications, at least once every 5 years, in conditions of independence, of the audit departments in the subordinate territory.

A novelty of major importance brought by this normative act refers to the risk assessment and ranking and the configuration of the audit mission according to these elements as well.

Regarding the issue of risk assessment, in the opinion of another specialist from the Internal Audit Department of the Ministry of National Defence there are at least 3 aspects of novelty:

- *Establishing the risk analysis criteria*; in this case, risk factors associated with the elements that make up the audit universe are defined, depending on the specifics of the entity, as well as a scale for establishing their level. For example, risk factors can be the *value of the operations performed, the allocated budget, the complexity of the operations, the number of operations, the image/reputation,* etc. A level rating scale is established for each factor, as well as a weight;
- *determining the total risk score on each process/activity/structure/program and their ranking*; in this case, each element of the audit universe (for example, each structure) is assessed in relation to each established risk factor; on each element is added up, weighed, the level associated with each risk factor and thus the total risk score are determined, that is the risk assessment at macro level;

• *establishing the way of covering/distributing the internal public audit missions in the plan / drawing up the justification report*; in this stage the way is mentioned in which the multi-annual audit plan and the annual plan are drawn up, by specifying the method of selection in the plan; for example, the inclusion in the first year of the audit of high risk structures (total high risk score) [16].

Another novelty that we want to highlight and is related to the topic of our research is related to changes to the procedure for following up on recommendations.

The possibility was established for the auditors to analyse and evaluate the action plan elaborated by the audited entity for the implementation of the recommendations and, as the case may be, to propose possible modifications. At the same time, a maximum term is established for the transmission of the action plan for the implementation of the recommendations by the audited entity, of 15 days from the receipt of the internal public audit report. The implementation of these measures may lead to a reduction in the risks of improper implementation of the recommendations made in the internal public audit report.

Regarding the reporting of the progress made in the implementation of the recommendations, the following elements can be used: problem/finding (in summary), recommendation, implementation stage, activities/actions performed, results obtained and their evaluation, reason for non-implementation or partial implementation of recommendations, responsible, deadline.

In the model of the *Monitoring Sheet for the implementation of the recommendations (FUIR)*, proposed by the *Methodological Norms regarding the exercise of the internal public audit in the Ministry of National Defence*, approved by the Order of the Minister of National Defence no. M.67/2014, it is provided that novelty (in the form of a separate section in FUIR) and the added value brought by the internal audit (the head of the public internal audit department must assess the added value of the internal audit by implementing the recommendations and include this information in periodic reports)[17].

Next, we will focus on the methodology for evaluating the internal managerial control by the internal audit of the army.

After the moment of risk assessment and their ranking in the internal audit process, the important moment is the initial evaluation of the internal control and the establishment of the objectives of the public internal audit mission. The initial assessment of internal control is based on the internal control questionnaire.

The internal control questionnaire allows, through the questions asked and the answers received, the identification of the internal control activities established by the management and the appreciation of their functionality.

The initial evaluation of the internal control supposes the completion of the following stages: the determination of the functioning modalities of each identified activity/action; identification of the existing internal controls, based on the internal control questionnaire and the collected documents; establishing the internal controls expected for each activity/action and identified risk; establishing the conformity of the internal control.

For the initial evaluation of the internal control, a scale is used, on 3 levels, as follows: compliant internal control; partially compliant internal control; non-compliant internal control.

The initial evaluation of the internal control and the establishment of the audit objectives are performed on 3 levels of risks: activities/actions with high level risks, regardless of the result of the internal control evaluation; activities/actions with medium level risks and partially compliant or non-compliant internal controls; activities/actions with low risks and non-compliant internal controls.

The audit may include other activities/actions with medium or low risks, depending on the available audit resources.

According to *Procedure P-08-Initial evaluation of internal control and establishing the objectives of the internal public audit mission in the Ministry of National Defence*, the internal auditors have the following obligations: establish the modalities of operation of each activity/action; establish the planned internal controls for each activity/action; conceive and elaborate the Internal Control Questionnaire used in identifying the existing internal controls; obtain the answers to the questions formulated in the Internal Control Questionnaire; identify the existing internal controls for each action/operation; perform the initial evaluation of the internal control; establish the objectives of the public internal audit mission; elaborate the form regarding the Initial Evaluation of the internal control and the establishment of the objectives of the internal public audit missions; make any changes established in the working meeting; file the documents elaborated within the risk analysis procedure in the file of the public internal audit mission.

The Head of the Internal Audit Department or the Head of the subordinated territorial structure or the Supervisor, in his turn, will have to: analyse and evaluate the expected internal controls identified; analyse and review the developed internal control questionnaire; analyse and evaluate the existing identified internal controls; organize a working meeting with the internal audit team to analyse the way in which the internal control was evaluated; supervise the form regarding the Initial Evaluation of the internal control and the establishment of the objectives of the internal public audit missions.

Examining carefully the criteria on the basis of which the risks of an audited entity are assessed, we find that they need to be measured more accurately, both in terms of the probability of occurrence of risks and in terms of the impact of risks.

In the part of probabilities of occurrence of risks, one of the criteria from these probabilities refers to the analysed risk, in the sense that it can be located in 3 variants; it has not previously manifested in the audited entity/domain audited (and then the probability of occurrence is low); it has rarely manifested in the past in the audited entity/audited domain (and then the probability of occurrence is average); it has often manifested in the past in the audited entity/audited domain (and then the probability of occurrence is high).

We consider that this risk should be supplemented here by specifying frequency intervals from the previous audit mission to the one to be carried out (for example if the frequency was between 1-5 within 3 years of the previous audit to medium risk is considered and if the frequency of manifestation of this risk was higher than 5 within 3 years from the previous audit to be considered high risk.

On the impact side, loss of assets and impairment of operating costs are provided as criteria. There are also 3 levels of impact: low impact (no loss of assets; operating costs are not affected); medium impact (asset losses are low; operating costs increase is moderate); high impact (significant asset losses; high operating costs).

Some amendments should be made to this part of the impact assessment, in accordance with the above criteria we have referred to.

For asset losses, a significance threshold[18] of their value must be established, in order to be able to classify them in one of the impact classes.

To set the significance threshold, you can go for a certain percentage (usually 1-2% of the value of the total assets of the unit according to the annual financial statements submitted in the years from the last internal audit to the next). If there is no damage to assets (found in annual inventories, inspections and controls performed or as a result of extraordinary events and reflected in the annual financial statements) then the impact is low. If there is damage to assets below or at the materiality threshold (found in annual inventories, inspections and controls performed or as a result of extraordinary events and reflected in the annual financial statements) then the impact is medium. If there is damage to assets above the significance level (found in annual inventories, inspections and controls or as a result of extraordinary events and reflected in the annual financial statements) then the impact is high.

For operating costs, two aspects should be taken into account: the costs planned through budgets and the actual costs of the audited activities/areas, in order to see the relationship between them, correlated with the affectation or not of the quality of the activity carried out by the audited entity.

The values of the costs of the activities must be taken from official documents validated and reported by the management to the audited entities to the higher hierarchical structures (such as the quarterly and annual financial statements, the projected budgets and their execution).

If the ratio between planned and realized costs is equal to one and the result of the entity is the one established by the operational documents then the impact is low.

If the ratio between planned and realized costs is unitary and the result of the entity (translated by specific quality indicators of the activity or services provided by the entity) is the one established by the operational documents then the impact is average.

If the ratio between planned and realized costs is sub-unitary and the entity's result is below that established by the operational documents then the impact is high.

We consider that by doing so and giving a greater weight to these two criteria in all 5 criteria to the impact side (to give them a higher weight than the other criteria in all those that measure the impact) and correlating the criterion of operating costs with the fulfilment result or quality indicators of the activity by the entity) a risk determination and ranking can be made more in line with reality and performance criteria and, on this basis, a focus of the audit mission on auditable activities and areas, in order the hierarchy of risks.

In order to increase the performance of the internal audit activity, we consider that it is very important to receive feedback from those audited, in order to see their opinion regarding the degree of necessity and usefulness of the audit mission in their entity.

We consider that after the period of implementation of the recommendations by the audited entity, within the missions of evaluation of the internal audit activity carried out by the subordinated territorial audit sections, it is very appropriate for the *Internal Audit Department* to carry out a statistical survey study on the basis of a questionnaire for assessing the contribution of internal audit to the evaluation and improvement of internal managerial control in military units and other structures audited by the teams of these departments.

The statistical survey is a procedure that characterizes a population, based on the research of a part of it, so a sample taken from the population of origin (total community)[19]. The community in such a survey can be composed even of the persons from the audited entity who had responsibilities and were directly involved in the internal audit process.

A model of such a questionnaire will be addressed to persons directly involved in the internal audit activity of the entity subject to such examination (such as commanders, their deputies, chief accountants, lawyers, other heads of independent structures who have been audited internally by the teams of the territorial sections in the missions carried out previously), must include, in our opinion, in the area of the evaluation of the internal managerial control, the following kinds of questions:

- How do you assess whether the audit team performed the evaluation of the internal managerial control at your unit?

  a) At a higher level of objectivity;
  b) At average level of objectivity;
  c) At a low level of objectivity;
  d) At a very low level of objectivity;
  e) I cannot estimate.

- Did the questionnaire that was sent to you for the prior evaluation of the internal managerial control seem relevant to you through the questions that were asked?

  b) At medium level of relevance;
  c) At a low level of relevance;
  d) At a very low level of relevance;
  e) I cannot estimate.

- Do you consider that the answers you gave to this questionnaire were in line with reality, in order to help improve the management activity?

  a) At the maximum level of compliance;
  b) At average compliance level;
  c) Low level of compliance.

- Do you estimate that in their mission in your unit, the audit teams focused on the most important issues and with the highest risks for the smooth running of the activity of the unit you belong to?

  a) Yes, to a very large extent;
  b) Yes, to a large extent;
  c) Yes, to an acceptable extent;
  d) No, they did not focus on the major problems and the greatest risks of the unit.

- How do you assess the findings of the internal audit team on the area of non-conformities detected in the activity of internal managerial control at the entity you are part of?

  a) At a higher level of objectivity;
  b) At average level of objectivity;
  c) At a low level of objectivity;
  d) At a very low level of objectivity;
  e) I cannot estimate.

- How do you assess the recommendations of the internal audit team to eliminate the non-conformities detected in the internal management control activity at the entity you belong to?

  a) At a higher level of adequacy;
  b) At the average level of adequacy;
  c) At a low level of adequacy;
  d) At a very low level of adequacy;
  e) I cannot estimate.

• How do you assess the degree of implementation of the audit team's recommendations as compliance with the deadlines established according to the recommendation form, for the entity you are part of?

a) At the higher level of implementation;

b) At the average level of implementation;

c) At low implementation level;

d) At a very low level of implementation;

e) I cannot estimate.

These possible questions in the proposed questionnaire as well as others must comply with the scientific requirements imposed by the science of statistics and provide substantial and useful information for decision makers in the Internal Audit Department of the Ministry of National Defence, to correct shortcomings in the profile missions performed by subordinate department teams and remarkably increase the added value that these professionals can bring to the audited units.

Conclusions

The internal managerial control represents the set of control forms exercised at the level of the public entity, including the internal audit, established by the management in accordance with its objectives and legal regulations, in order to ensure the administration of funds economically, efficiently and effectively; it also includes the organizational structures, methods and procedures, and the control system is organized within the Ministry of Defence, based on the following principles: the principle of legality; the principle of adaptability; the principle of integrity; the principle of uniformity; the principle of finality; the principle of efficiency; the principle of effectiveness; the principle of economy.

In the process of implementing the standards of internal managerial control there are two obligatory stages: the stage of self-evaluation, performed by commanders/heads who have the quality of authorizing officers; the stage of evaluation, performed by the internal public audit structure of the ministry; for the self-evaluation of the internal managerial control system, the structures of the ministry whose commanders/heads have the quality of authorizing officers mainly go through the following stages: convening the monitoring commission in order to self-evaluate the own internal managerial control system; completion of the Self-assessment Questionnaire of the implementation stage of the internal managerial control standards; elaboration of the Synthetic Situation of the self-evaluation results and assessment of the degree of conformity of the own internal managerial control system with the internal managerial control standards, in relation to the number of implemented standards;

The entire management system and the two auxiliary components (internal managerial control and evaluation of this control by internal audit) at the level of all entities in the Ministry of National Defence cover a whole set of documents and responsibilities: strategies; strategic plans; procedures; manuals; internal regulations; structural projects; records; rules; appointments of persons with certain attributions; establishment and revision of management documents; quantitative and qualitative performance indicators; controls; measures/plans, etc.;

The internal public audit represents, for the military field, the functional-independent and objective activity, of insurance and counselling, designed to add value and to improve the activities carried out within the Ministry of National Defence; public internal audit helps the ministry leadership, audited military structures and units to achieve their objectives through a systematic and methodical approach; it evaluates and improves the efficiency and effectiveness of risk management, control and governance processes;

The initial evaluation of the internal control supposes the completion of the following stages: the determination of the modalities of functioning of each identified activity/action; identification of the existing internal controls, based on the internal control questionnaire and the collected documents; establishing the internal controls expected for each activity/action and identified risk; establishing the conformity of the internal control; for the initial evaluation of the internal control a scale is used, on 3 levels, as follows: compliant internal control; partially compliant internal control; non-compliant internal control;

Examining carefully the criteria on the basis of which the risks of an audited entity are assessed, we note that they must be measured more accurately, both in terms of the probability of occurrence of risks and in terms of the impact of risks; in the part of probabilities of occurrence of risks one of the criteria from these probabilities refers to the analysed risk, in the sense that it can be located in 3 variants depending on whether it: has not previously manifested in the audited entity/domain audited (and then the probability of occurrence is low); has rarely manifested in the past in the audited entity/audited domain (and then the probability of occurrence is average); has often manifested in the past in the audited entity/audited domain (and then the probability of occurrence is high).

We consider that after the period of implementation of the recommendations by the audited entity, within the missions of evaluation of the internal audit activity carried out by the subordinated territorial audit sections, it is very appropriate to carry out by the *Internal Audit Department* a statistical survey study on the basis of a questionnaire for assessing the contribution of internal audit to the evaluation and improvement of internal managerial control in military units and other structures audited by the teams of these departments. A model of such a questionnaire as the one presented above (which can be supplemented with other appropriate questions) may be addressed to persons directly involved in the internal audit activity of the entity subject to such examination (such as commanders, their deputies, chief accountants, lawyers, other heads of independent structures who were audited internally by the teams of the territorial sections in the missions performed previously) and can help a lot in improving the internal public audit activity in the area of deep evaluation of internal managerial control in army entities.

NOTES:

1 Official Gazette of Romania, Part I, no. 456 from 06.06.2019.

2 PODCA project entitled ”Improving the organizational effectiveness of MEN and subordinated institutions through the development of the internal management control system (IMCS)”, p. 5.

3 http://ec.europa.eu/romania/documents/eu_romania/tema_20.pdf

4 *Order of the Secretary General of the Government no. 600/2018*, Glossary.

5 *Order M100/2019*, Art. 3.

6 *Order M100/2019*, Art. 5.

7 *Order M100/2019*, Art. 6.

8 *Order M100/2019*, Art. 9.

9 *Official Gazette of Romania*, Part I (the approval of the Code of internal managerial control of public entities), no. 387 of May 7, 2018.

10 [Romanian Court of Accounts], *Guide for evaluating the internal control system in public entities*, Bucharest, 2011, p. 31.

11 *Ibidem*, p. 40.

12 *Official Gazette of Romania*, Part I, no. 17 of January 10, 2014.

13 Official Gazette of Romania, Part I (For the approval of the Methodological Norms regarding the exercise of the internal public audit in the Ministry of National Defence), no. 463 of June 25, 2014.

14 *Order of the Minister of National Defence no. M67* from 17.06.2014, Art. 2.

15 Radu-Viorel Marcu, ”Evoluții în legislația națională în domeniul auditului public intern și analiza cadrului national de reglementare”, *Finanțe publice și contabilitate,* no. 6/2015, p. 19.

16 Marius-Gabriel Tomoială, „Principalele modificări aduse metodologiei de audit intern prin Hotărârea Guvernului nr. 1086/2013”, *Finanțe publice și contabilitate,* no. 6/2014, p. 35.

17 Radu-Viorel Marcu, *op.cit.*, p. 21.

18 [International Accounting Standards Committee], *General Framework for the Preparation and Presentation of Financial Statements*; *Significance Threshold* is defined: ”Information is significant if its omission or misstatement could influence users' economic decisions made on the basis of financial statements. The significance threshold depends on the size of the item or error, judged in the specific circumstances of the omission or misstatement. Thus, the significance threshold provides a limit rather than a primary qualitative feature that information must have in order to be useful”.

19 Mariana Balu, *Bazele statisticii,* Fundația ”România de Mâine” Publishing House, Bucharest, 2007, pp. 129-130.

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*** *Order of the Minister of National Defence no. M67 of 17.06.2014 for the approval of the Methodological Norms regarding the exercise of the internal public audit in the Ministry of National Defence*, Official Gazette of Romania, Part I, no. 463 of June 25, 2014.

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[International Organization of Supreme Audit Institutions (INTOSAI)], *ISSAI 1315, Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment,* Viena, 2007.

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DEFINING MOMENTS IN THE EMERGENCE AND EVOLUTION OF INTERNAL AUDIT IN OUR COUNTRY

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The appearance and improvement of the internal audit activity in the public and private entities from Romania represented and constitutes a natural necessity, a consequence of the tendencies and practices manifested on international and European level in this field. Our country has taken actions for the implementation of the internal audit service in state and private entities with a certain delay and sinusoidal evolutions, determined by the alternation of administrations and regimes (interwar democracies - communist totalitarian - democratic).

The Ministry of National Defence as part of the public administration, through specialized structures and in all its composing entities, applies the provisions of normative acts regarding the development of internal audit activity, fact for which we highlighted reference moments in the process of occurrence, organization and exercise of audit activity internal public in the structures of this ministry.

Keywords: internal audit; internal audit function; insurance missions; regularity audit; performance audit; system audit; internal audit advice.

Introductory aspects regarding the appearance of the internal audit in Romania

The need for the *internal audit function* was also felt in Romania with the transition to a market economy, when economic and social entities began to face a problem related to finding viable solutions so as to improve the performance obtained, by increasing efficiency, effectiveness and economy, by performing the management and internal control over the functioning of these entities by the management teams.

Romania has undertaken a series of measures to connect to international and European accounting requirements, such as: the adoption of International Accounting Standards at the level of economic agents and then the public sector, the introduction in public institutions of a new accounting system, based on the System European Court of Auditors, as well as changes in economic and fiscal legislation. It was also necessary to organize the audit activity, both for private and public organizations. Membership of the European Union requires the existence of well-defined financial management systems, but also viable methods of controlling them[1].

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Any manager of a private or public sector organization feels the need to obtain a certain *reasonable assurance* that the transactions carried out and the decisions taken involving resources with financial connotations are under control and the objectives of the organization are met.

In the context of these concerns of managers, *internal audit* is a significant support to them, in achieving the objectives set, through a systematic and well-organized activity, in order to evaluate and improve the effectiveness and efficiency of management and control processes.

The great merit of the internal audit is that it acts in an independent, objective way, without accepting compromises and without aiming to achieve power, therefore, without endangering the position of managers.

In Romania, the recognition of the importance of this field of internal audit was made quite late compared to other states, due, on the one hand, to the domination of the communist regime until 1989, but also to the economic difficulties generated by the inability of governments after the revolution, to adopt a transition strategy appropriate to the economic conditions in our country, but also due to the positive experience proven by other states in similar situations to ours. In the Romanian economy, the trajectory of the evolution of internal audit was reversed compared to the international one.

While internationally the internal audit function has developed, starting from large enterprises and multinationals to public sector entities, the situation in Romania has been in reverse.

In Romania, the internal audit targeted, first of all, the bodies and institutions in the public domain and later on, as the investments developed and more and more private companies of increasing size were created, they felt and in this area the usefulness and imperious need of the internal audit function.

Thus, the internal audit in Romania gradually became part of the general effort to improve and enhance the management of both public and private sector organizations, amid the harmonization of the internal regulatory framework with European legislation, taking into account the efforts made by our country on the way to integration among the member countries of the European Union.

According to the opinion expressed by a specialist from our country, quoted earlier, the concept of "internal audit" began to be used a lot in various environments, perhaps even in excess, becoming a fashionable concept in the Romanian economic context, being used by various categories of specialists in all fields, sometimes without being fully aware of what internal audit really means[2].

Highlights on the emergence and development of internal audit in private entities in Romania

The internal audit activity for the private environment appeared a little later than in the public sector and is currently coordinated in our country by the Romanian Chamber of Financial Auditors – CAFR[3] and the Romanian Association of Internal Auditors – AAIR[4] and has as correspondent to the entities in this sector, internal audit departments or the outsourced service in this field.

In the private environment, the internal audit activity is carried out only in companies and non-profit organizations that are subject to statutory financial audit, according to Law no. 162/2017[5] on the statutory audit of the annual financial statements and the consolidated annual financial statements. This normative act stipulates three very important provisions about the internal audit in the private environment, which we will point out below.

The entities whose annual financial statements are subject, according to the law, to the statutory audit are obliged to organize and ensure the exercise of the internal audit activity[6].

The internal audit standards applicable to private entities in our country are the international internal audit standards issued by the Institute of Internal Auditors of the United States of America and adopted by the Chamber[7].

At the autonomous utilities, the national companies/societies, as well as at the other economic entities with majority state capital, the internal audit activity is organized and operates according to the legal framework regarding the internal public audit of the public entities[8].

The financial auditors who coordinate the internal audit activity (at private entities) must have the status of active financial auditor member of the Romanian Chamber of Financial Auditors – CAFR[9].

In the case of internal auditors of companies and non-profit organizations, they have a major social responsibility to the clients of these entities, for the smooth running of their business and actions.

The Romanian Chamber of Financial Auditors – CAFR and the Romanian Association of Internal Auditors-AAIR have jointly developed the Guide[10] on the implementation of International Internal Audit Standards for the private sector. This guide includes as more important provisions for the internal audit of private entities, the following major issues: the objectives of these internal audit missions; the importance and place of internal audit within the governance of the entities (partial or total outsourcing of this audit service to private entities is allowed); types of internal audit missions that can be performed at these private entities (insurance and advisory missions); the specific methodology for conducting audit missions to these entities (the methodology is largely similar to that of public internal audit, but also contains specific elements).

We can conclude that in the private sector, internal audit is an increasingly stringent need for the governance of entities in this field, even if the implementation started a little later than in the public sector, and from the point of view of the regulation of this normative activity in the field, they intervened more timidly and with more modest results regarding the particularization of the internal audit in this environment.

Moments from the process of appearance, organization and exercise of the internal public audit activity in the Ministry of National Defence

The internal audit activity of the Romanian Army went through the same evolution as that of the public institutions in our country, without having at the beginning of its activity certain nuances and particularities, due to the specificity of the military field.

Only starting with the latest regulations in this field in our country, did the Ministry of National Defence, through the competent bodies, issue normative acts that customize the internal audit activity to the specifics of the military body.

The general objective of the internal public audit in the Ministry of National Defence is to improve the management of the central structures, structures and forces subordinated to them in the Ministry of National Defence.

The public internal audit is organized and conducted, at the level of the Ministry of National Defence, by the Internal Audit Department (DAI), as a distinct, specialized and unique central structure in this field in the army.

The Internal Audit Department as an independent structure is constituted in accordance with the provisions of Law no. 167 of 2017[11] for the amendment and completion of Law no. 346/2006 on the organization and functioning of the Ministry of National Defence, and the exercise of its activity is done according to the provisions of the *Order of the Minister of National Defence no. M. 67/2014*[12] for the approval of the *Methodological Norms regarding the exercise of the internal public audit in the Ministry of National Defence* (amended and updated by the Order of the Minister of National Defence no. 127 / 09.12.2014[13]), normative act that customizes to the army specific the provisions of Government Decision no. 1086/2013[14].

The fields of activity and the attributions of the Internal Audit Department are included in detail in the Regulation of Organization and Functioning of the Ministry of National Defence, approved by Order no. M.S. 156/2017 with subsequent amendments and completions, being classified according to law.

The organizational chart of the Internal Audit Department of the Ministry of National Defence is currently the one presented in Figure 1.

The main attributions of the Internal Audit Department[15], resulting from the normative acts mentioned above, are the following: it elaborates/updates the norms regarding the exercise of the public internal audit activity in the ministry, endorsed by UCAAPI; it elaborates the draft of the Multiannual Public Internal Audit Plan and the draft of the Annual Public Internal Audit Plan of the ministry, which it submits to the approval of the Minister of National Defence; it performs

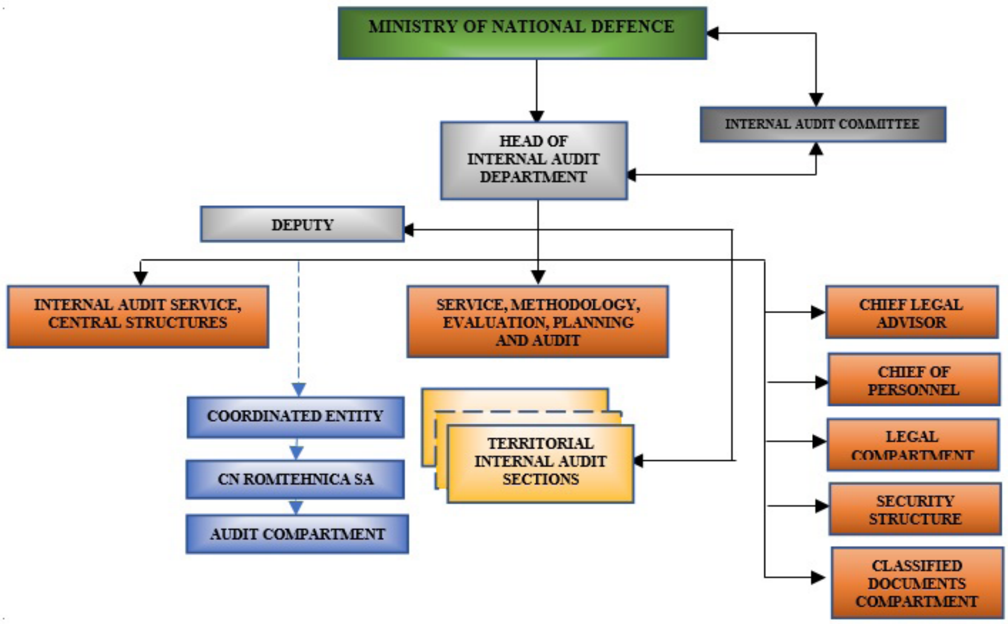

Figure 1 *Organizational chart of the Internal Audit Department of the Ministry of National Defence*
Source: www.mapn.ro, accessed on 04.10.2020.

public internal audit activities in order to evaluate the financial management and control systems of the central structures, structures and forces subordinated to them in the ministry, as well as of the structures under its coordination or authority; it informs UCAAPI about the recommendations not adopted by the Minister of National Defence; it reports to the Minister of National Defence, to UCAAPI and to the Court of Accounts, on the established terms, the findings, conclusions and recommendations resulting from the public internal audit activity; it capitalizes on the results of the public internal audit activity and reports to the Minister of National Defence and to UCAAPI, through an annual report, on the way to achieve the objectives of the Internal Audit Department; in case of identification of some irregularities or possible damages, it reports to the Minister of National Defence and the competent internal control structure; elaborates the Charter of the internal public audit; verifies and evaluates the observance of the norms, instructions, as well as of the Code on the ethical conduct of the internal auditor within the subordinated territorial structures and internal audit departments within the autonomous utilities and national companies under the coordination or authority of the Ministry of National Defence.

The Internal Audit Department of the army performs two categories of missions: insurance missions; counselling missions.

The *assurance missions* represent objective examinations of the evidence, carried out in order to provide the central structures, structures and subordinate forces of the Ministry of National Defence with an independent assessment of the risk management, control and governance processes. Insurance missions can be: 1) regularity audit missions; 2) performance audit missions; 3) system audit missions.

The *regular audit missions* aim at examining the actions on the financial effects on the account of public funds or public patrimony, in terms of observing all the principles, procedural and methodological rules that are applied to them.

The *performance audit* is an analysis of activities, processes, programs, projects carried out within the central structures, structures and forces subordinated to them in the Ministry of National Defence, designed to add value to them, by evaluating and comparing the results obtained with those proposed or expected, in conditions of economy, efficiency and effectiveness.

The *system audit* is an in-depth assessment of the management and internal/managerial control systems within the central structures, structures and forces subordinated to them in the Ministry of National Defence, as well as the coordinating entities, in order to establish whether these systems work economically, effectively and efficiently, to identify deficiencies and make recommendations for correction. In recent years, the share of system audit and performance audit has increased considerably and with it the added value of internal audit work.

Counselling is the activity carried out by internal auditors, meant to add value and improve governance processes within the Ministry of National Defence, without internal auditors assuming managerial responsibilities. The counselling activities carried out by the Internal Audit Department and the subordinated territorial structures include the following types of missions: consultancy; facilitating the understanding; professional training and improvement.

The normative act regarding the internal public audit in the Ministry of National Defence also includes important references in the part of Methodological Norms, to the following aspects: General provisions; Organization and competence of the internal public audit; Independence and objectivity of the internal audit structure and of the internal auditors; Peculiarities regarding the framing of the internal audit structure and of the internal auditors; Competence and continuous professional training of internal auditors; The methodology for obtaining and maintaining the attestation certificate by the auditing staff; Evaluation, assurance and improvement of the quality of the public internal audit activity; Planning the public internal audit activity; Carrying out public internal audit missions; Insurance missions; Counselling missions; Missions for evaluating public internal audit activities; Glossary of terms and definitions; The objectives of the public internal audit activity; The procedure for carrying out the public internal audit activity; The general methodology for carrying out the insurance missions; Peculiarities regarding the organization and development of system audit missions within the Ministry of National Defence.

Of these components, we will approach in detail only the part related to the Evaluation, assurance and improvement of the quality of the internal public audit activity within the Ministry of National Defence.

The evaluation of the quality of the public internal audit activity follows the accordance between the organization and functioning of the public internal audit activity within the Ministry of National Defence and the normative framework specific to the field, as well as the analysis of the degree of fulfilment of the established objectives.

The evaluation of the quality of the internal public audit activity is based, mainly, on: the observance of the Norms regarding the exercise of the internal public audit activity and of the Code regarding the ethical conduct of the internal auditor; the adequacy of the Public Internal Audit Charter, of the internal audit rules and procedures, of the objectives, performance indicators and information system; the contribution of the internal public audit to the risk management, control and governance processes of the central structures, structures and forces subordinated to them from the Ministry of National Defence; the contribution of the internal public audit to the creation of an added value and to the improvement of the activities and missions of the central structures, structures and forces subordinated to them from the Ministry of National Defence.

The evaluations of the quality of the internal public audit activity, in the Ministry of National Defence, can be internal or external.

The internal evaluations are performed by the head of the Internal Audit Department or by the persons designated by him and consist of:

- periodic evaluations, performed by assessing the performances of the internal auditors, annually and on the occasion of the completion of the internal public audit mission, as well as by self-evaluations performed in the field of the internal control system;
- continuous evaluations, performed by monitoring the fulfilment of activities/ actions and supervising the internal public audit missions.

External evaluations are performed, at least once every 5 years, as follows:

- UCAAPI evaluates the internal public audit activity of the Internal Audit Department, from the point of view of compliance and performance;
- The Internal Audit Department evaluates, from the point of view of compliance and quality, the public internal audit activity carried out by the subordinated territorial structures and, as the case may be, at the level of autonomous utilities and national companies under the coordination/ authority of the Ministry of National Defence.

In order to improve the internal public audit activity, in accordance with the norms regarding the establishment of internal audit committees, elaborated by the Ministry of Public Finance and approved by the Government, at the level of the Ministry of National Defence, the Internal Audit Committee is established and operates, an advisory body, which aims to facilitate the relationship between the Internal Audit Department and the management of the Ministry of National Defence.

The internal audit committee of the Ministry of National Defence comprises 5 members, appointed by the Minister of National Defence, in compliance with the composition provided in art. 9 of Law no. 672/2002, republished, with subsequent amendments and completions.

Membership in the Internal Audit Committee of the Ministry of National Defence ceases in accordance with the express provisions of the Norms on the establishment of internal audit committees, approved by Government Decision no. 554/2014[16] for the approval of the Norms regarding the establishment of internal audit committees.

The internal audit committee of the Ministry of National Defence analyses its activity and evaluates its own efficiency by elaborating an annual activity report, which it sends to the Internal Audit Directorate, in order to process the information and include it in the Annual Report of the internal public audit activity in the Ministry of National Defence[17].

The internal audit department had and is constantly concerned with the adoption of specific normative acts, in the form of orders of the Minister of Defence, starting from the national normative framework in the field, through which to customize and detail the provisions of acts adopted at national level, in line with the specificity and complexity of the activity of the entities that make up this ministry and which are subject to internal public audit missions. The most recent example in this respect is the Order of the Minister of National Defence no. M. 67/2014, which took over and customized the provisions of GD no. 1086/2013 to the specifics of the ministry under analysis.

Of course, the activity of public internal audit is one subject to continuous transformations and modifications, under the impact of international standards, regulations of European and NATO authorities (bodies and alliances which we are part of) but also of national bodies in the field (UCAAPI for public audit and the Romanian Chamber of Financial Auditors - CAFR - Romanian Association of Internal Auditors - AAIR for internal audit of private entities), and the Ministry of National Defence and the Internal Audit Department must be permanently connected to the changes and modernizations generated by these authorities, under the effect of the evolution of the socio-economic and military mechanisms, currently and expectedly in the future, and to customize them in a more pronounced and appropriate way to the specifics of the army.

Conclusions and proposals

In Romania, the process of introducing and modernizing the internal audit activity started later in the interwar period but also in the post-war period, due to a more modest economic evolution until the end of the Second World War (compared to countries like the USA, Great Britain, France, etc.), respectively due to the establishment of the communist regime for almost 45 years and after 1990, due to the prolonged transition, for a much longer time, from the centralized economy to the market economy;

The implementation of the bodies and rules of operation of the internal audit activity started in our country first in the public sector and then in the private one and accelerated in the vicinity, but especially after the accession of Romania, first to NATO (in 2004) and then to the European Union (in 2007), a process which is currently keeping pace with the constant changes taking place in this activity and profession at international and European level;

For the private environment, bodies such as the Romanian Chamber of Financial Auditors-CAFR and the Romanian Association of Internal Auditors-AAIR are established, whose missions include, among others, the regulation and coordination of internal audit in these entities;

The Ministry of National Defence operates internal public audit structures that apply national regulations in the field, with some customizations made through orders of the Minister of National Defence.

Following our research briefly presented through this article we could formulate the following proposals:

- Continuing the cooperation between the bodies that coordinate the public internal audit (UCAAPI) and those that regulate this type of audit for the private environment, in order to establish unique, unitary but customized regulations for the two business environments, so that there are no more acts or norms which create difficulties and ambiguities in understanding and carrying out such missions;
- Adopting a more effective takeover and more pronounced customization of the national regulations for internal audit in the public sector, by the competent bodies of the Ministry of National Defence (the relevant minister and the Internal Audit Directorate), for the more efficient and adequate performance of missions in this area of national security.

NOTES:

1 Morariu A., Suciu Gh., Stoian F., *Audit intern şi guvernanţa corporativă,* University Publishing House, Bucharest, 2008, p. 15;

2 Boţa-Avram Cristina, *Auditul intern al societăţilor comerciale,* RISOPRINT Publishing House, Cluj-Napoca, 2009, p. 49;

3 www.cafr.ro

4 www.aair.ro

5 *Official Gazette of Romania*, Part I, no. 548 of July 12, 2017.

6 *Law no. 162/2017*, Art. 20.

7 *Ibidem.*

8 *Ibidem.*

9 *Law no. 162/2017*, Art. 8.

10 www.cafr.ro

11 *Official Gazette of Romania*, Part I, no. 559 of 14.07.2017.

12 *Order of the Minister of National Defence no. M. 67/2014*, Articles 7-8.

13 *Official Gazette of Romania*, Part I, no. 921 of 18.12.2014; The modification and completion of the Methodological Norms regarding the exercise of the internal public audit in the Ministry of National Defence.

14 *Official Gazette of Romania*, Part I, no. 17 of January 10, 2014; General Norms regarding the exercise of the public internal audit activity.

15 www.mapn.ro, accessed on 10.04.2020.

16 *Official Gazette of Romania*, Part I, no. 511 of 09.07.2014.

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CHARACTERISTICS OF THE MILITARY’S MOTRICITY AT DIFFERENT AGES

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The article addresses the motricity of military personnel at different ages, in three periods of life in service, as follows: the period of military high school education; the period of initial training as a military; the period of maturation and continuous professional development. Also, we presented in the article the manner of evolution of the military from a physical point of view, starting immediately after the selection process and continuing with the period of professional development (period marked by maximizing motor performance in the first phase, keeping oneself for as long as possible at this level, and then obviously reducing it as retirement is approaching).

Keywords: motricity; motor qualities; motor skills; age; physical effort; professional development; performance.

The Explanatory Dictionary of the Romanian Language defines *motricity* as an ”ability of the superior nervous activity to move quickly from one excitation process to another, from a certain dynamic stereotype to another”[1] or a ”property of certain nerve cells to cause muscular contractions”[2].

In the specific literature in the field of physical training and sports, ”the motricity concept is defined as expressing a both innate and acquired human being ability to react with the locomotor system to external and internal stimuli, in the form of a movement…, a set of processes and mechanisms by which the human body or its segments move, detaching from a landmark, by phasic or dynamic muscle contractions, or maintain a certain posture by tonic contractions”[3]. Also, from a psychological point of view, motricity is ”the function that ensures the realities with the material and social environment and which has as peripheral support the striated muscles”[4].

Thus, in summary, motricity is represented by all motor acts, performed through the contraction of skeletal muscles, realized so as to maintain the relationships with the natural or social environment, also by performing skills specific to sports.

The analysis of motricity, taking into account the complexity of its content and forms, can be performed in order to achieve didactic purposes, only through its component substructures: the act, action and motor activity. These components represent the *micro, meso and macrostructure of the movement*, with different levels of structuring and integration that make up a hierarchical functional system[5].

The motor development of the military is often seen as a process of progressive learning of specific motor skills during his/her initial training (not infrequently, during the training process, when a military is subjected to the execution of a complex motor skills structure, he/she states that he/she has not done something like this from the ”military school”). From this perspective, the study of motor skills should not be reduced only to the initial training of the military, but, on the contrary, this process should include the description and explanation of changes in motor behavior that operate at the base of military career, during maturity and until the moment of exit from the military system.

Learning, consolidating, improving and using motor skills are tests that the military personnel is subjected to throughout their careers. This process begins early on, with the acquisition of basic and utility-applied motor skills in the family and in school. Subsequently, given that the military accesses the system following a rigorous selection process consisting of medical, psychological and physical tests, basic skills are consolidated, improved and combined into movement sequences that will lead to the acquiring of complex skills specific to the military environment. Together

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with the process of development (maturation), the perception of the military environment becomes penetrating, favoring cognitive experiences that maximize motor performance. Maintaining oneself at this maximum level the motor performance and going down as slowly as possible on the descending slope, largely depends not only on the performance of each military, but also on the pedagogical mastery of the instructors.

This article analyzes the motricity of the Romanian army soldiers, who are in certain periods of their military career, at different ages, as follows:

- the period of high school education, in the national military colleges (age group – from 14 to 18). Although the students of the mentioned institutions are not military in the true sense of the word, as they do not take the ”Military Oath”, I considered it appropriate to analyze this category of personnel which represents the basic nucleus for the training of officers;
- the period of initial military training, in military institutions of higher and post-secondary education and application schools/branch training centers (age group – between at least 18 years old and the age of graduating the institution);
- the period of growing and continuous professional development, when the military actually carries out its activity in the army structures; this period corresponds practically to adulthood, as it is called in the literature (adult I – from 35 to 45 years, adult II – from 45 to 55 years, late adult – from 55 years to retirement, in the case of the military).

The period of military high school education

At the level of national military high schools, the development of motricity is mainly achieved by carrying out the activity of physical training and sports, which together with the other disciplines in the curricula, contribute to shaping the personality of students, representing the intermediate link between physical education in military high-school and military higher and post-secondary education.

The general objective of the activity of physical training and sports in the national military colleges (as military high schools are called in Romania) consists in the development of the bio psychomotor skills of the students necessary for the professional insertion within the military system.

The specific objectives are reduced to: increasing the body’s resistance to environmental factors and increasing the capacity for physical and intellectual work; stimulating the growth process and ensuring harmonious physical development, in the sense of improving somato-functional indices and preventing the installation of deficient physical attitudes; forming and maintaining the correct attitude of the body; training and development/education of basic motor qualities, as well as combined ones; training, consolidation and improvement of basic and military-applicative motor skills; stimulating interest and building the independent capacity for practice physical exercise; broadening the horizon of knowledge by mastering the system of values and norms necessary for the practice of physical training and sports; educating the spirit of discipline, of collective action, of mutual help and first aid; the development of morally-volitional traits, such as punctuality, discipline, courage, initiative, determination; developing the ability to orient oneself in space; increasing responsibility for one’s own training.

During high school, the student ”changes his self-perception, including body image, as an expression of his identity. The biological, intellectual and moral maturation is progressively felt in the displayed conduct, the self-search being replaced by the self-assertion (U. Șchiopu). The body image located peripherally in childhood acquires persistence, polarizing the attention of the young person who is constantly looking to improve (adjust) this image”[6].

High school students, especially those of the national military colleges, go through a period of life characterized by a series of stomato-functional and mental characteristics. Considering the age at which the students of the national military colleges are, namely the period of adolescence, we considered it necessary to highlight some features and consequences of their impact on military life, a period characterized by the following transformations:

- the trunk grows rapidly in all sizes, increases the circumference of the chest, improving and amelioration the function of the heart and cardiovascular system;
- the muscles increase in volume and strength. The small muscles (of the hands, feet, spine, intercostal) acquire a shape and consistency

similar to the adult muscles, the movements being performed more precisely and safely. The organs and systems are completed in parallel with sexual maturation;

• ossification of the skeleton continues vigorously. The balance between the volume of the heart and that of the blood vessels is established by increasing and thickening the heart muscle. Thus, the blood circulation improves, the circulation speed slows down, the pulse slows down, the blood pressure becomes equal to that of the adult;

• the coordination structures of the neuro-endocrine system mature, a significant fact in balancing the performance of motor acts and actions and in their superior regulation. Motor responses become complex and nuanced due to the development of skills to perceive significant elements for effective motor behavior. Military college student assesses his or her chances of success and makes plausible predictions about his or her own motor performance;

• in terms of motor qualities, they progress, in the ninth and tenth grades, maintaining the possibility to act, by specific means, on the development/education of coordination capacity and speed; indices of coordination, speed and aerobic endurance are increasing rapidly, and flexibility must be constantly maintained; force exercises must be performed with medium and submaximal intensity so as not to affect the musculoskeletal system, not yet fully consolidated;

• there is a permanent process of improving the motor skills and abilities consolidated in the previous stages, thus seeking to effectively cover the area of existing motor activities (educational, competitive, leisure, body expression etc.);

• the students’ psyche develops more and more, they acquire logical thinking, which is also completed by its critical side. Attention and memory become sustainable, the spirit of initiative develops, the need to assert oneself, to check one’s own strengths.

Somatic-functional and mental transformations are strongly influenced by the specific conditions of national military colleges, where the school makes a consistent impression on the formation of the adolescent’s personality compared to the family environment or social micro group in which students spent their childhood.

Once admitted to the military college, the student leaves the parental guardianship, is released from their permanent observation and has to abide by the rigors of military regulations. Students go through a period of adaptation to the new conditions - uniform, order and discipline, strict and very busy daily schedule, diet, ever-increasing demands of military education, responsibility for their own activity - which put a strong imprint on their mental and physical life.

From the measurements performed by the specialists in the field, it results that the somatic indices of the students from the national military colleges are superior to the students from the civil high schools. Also, the functional indices, respectively the state of health (physical and mental) and the body attitude present differences in a positive sense for the students from the national military colleges, as the admission in these institutions is made, as mentioned above, after completing of a recruitment activity and then a selection consisting of medical, mental and physical tests.

During the years of study, the positive attitude of the students towards physical training and sports must be noticed, as they want to become real fighters, being aware that through this activity they can accomplish their goal. Also, within this activity, the feeling of personal honor, of the prestige of the group is manifested, particularities that must be exploited by physical education teachers, coaches and instructors, thus benefitting from the interest shown in training lessons for the development of endurance and physical strength, shaping the external appearance of the body and educating, in general, the ability to move.

Therefore, at this level, motricity is not limited to the high school curriculum, but comprises complex ways of adapting to various situations (many of them similar to the military action environment), mastering one’s own body, information processing, building certain reasoning and use of different forms of expression. After all, learning every move is ”an experimental approach felt bodily”[7].

The period of initial training as a military

The initial training period takes place in military higher education institutions, military schools of warrant officers and non-commissioned officers, application schools/branch training centers, depending on the category of participating military personnel and the training program. In these military training structures, the activity of physical training and sports aims to develop and strengthen the motor capacity of students in order to increase their physical and mental potential while maintaining optimal health. The aim is to improve the anatomical structure and improve the body’s functions in order to obtain the best possible psychophysical efficiency. Military physical education is seen primarily as a process of adapting the body to increasing functional efforts, to new experiences, in terms of strength and speed, endurance and flexibility, coordination of movements and dexterity, mental strain and other numerous requirements. It aims at learning, developing, consolidating and improving motor skills and abilities specific to the development of military actions.

The age at which the young military of the mentioned training structures are, approximately, between 19 and 30 years old, a period in which the growth and development of the human body takes place, reaching the optimal degree of somatic-functional maturity. At this age, the respiratory and cardiovascular systems overcome the developmental crisis, function synergistically and adapt to physical effort, the metabolism being more balanced. Under the influence of physical effort, the main systems (circulation, respiration and nervous regulation of body functions) reach optimal values, during this period ensuring biological support for resisting the intense psychophysical demands specific to military activity.

A specific feature of the military system is that the training of human resources in educational institutions and, subsequently, at the level of training subunits is performed at the same level of standardization, regardless of age and sex. In this respect, the exquisite skill of the military instructor is to lead the training towards the fulfillment of the designed objectives, by homogenizing the study formations/training groups/training subunits, taking into account the following characteristics of the age period analyzed:

- in the somatic sphere – uneven and sometimes asymmetrical, arrhythmic, alternating and differentiated growth and development between the sexes (height and body weight, bust, wingspan, thoracic perimeter, bitrohanterian and biacromial diameters, limb length, muscle mass and strength etc.); while aging, the properties of the muscles increase (excitability, contractility, conductivity, tone) in relation to the degree of training, but their elasticity decreases; the musculoskeletal system strengthens, the bones become heavier, the joints stabilize, the muscles increase in volume and strength, the speed and ability to move normalize;
- in the functional sphere – at the level of the respiratory system the thoracic box increases, the diaphragm is strengthened, the respiratory movements are amplified and the vital capacity is increased. Also, the type of breathing changes, being predominantly abdominal, in men with lower ribs and in women with upper ribs, and the exchange of gases between the lungs and tissues becomes more efficient; at the level of the circulatory system, at this age the weight of the heart, contractions (85-86/min), blood pressure (120/75 mm), its volume (250-300 cm^3) are stabilized, in the conditions of a normal functioning; the digestive system, endocrine system and nervous system are perfected, stabilized and matured;
- in the psychological sphere – at this stage it is characterized by physical vigor, amplified by intelligence, memory, abilities and skills fully usable, as well as a more efficient performance, a period of great sensory-perceptual manifestations. Following numerous psychological studies, related to human personality, obvious differences between the two sexes were found. Therefore, in the field of military training it is necessary to take into account the fact that young women have a greater sensitivity to colorful visual stimuli, sounds and noises, have a better developed sense of touch, hands skills are more mobile, fast and coordinated. Women have stronger verbal skills and cope with stress more easily. Men have more developed spatial-visual sensibilities, have pronounced mathematical skills and abstraction skills. Instead, they have greater aggression and real evaluative mobility[8].

The body image, located peripherally in the period before joining the military system, acquires consistency, polarizing the attention of the military student who is constantly looking to improve this image. Motor responses are becoming increasingly complex and nuanced as we develop the skills to perceive the significant elements for effective motor behavior. Also, the sensory sensitivity contributes to the completion of the motor repertoire of the individual, for athletes obtaining top results in sports and military-applicative competitions both during participation in the training program and after graduation.

However, at the age of majority of participants in initial training programs, there are still opportunities for somatic-functional development. The activity of physical education and sports, within these military training structures, aims to continue the physical development through a technical-methodical activity carried out at a high level, in order to complete and capitalize on previous training.

The period of maturation and continuous professional development

Although this age period has not been treated as such in the literature, as it initially coincides with the transition from adolescent to young adult status and later to adulthood (adult I, adult II and, less for the aging adult), I consider that, from the motricity point of view, the period of maturation and continuous professional development, specific to the military system, can be divided into two stages: stage 1 – from graduation from the initial training institution to the age around 35-40 years old; stage 2 – from 35-40 years old until leaving the system. These stages of age at which the military are situated represent the middle period of life, of middle maturity, in which they engage in an offensive attitude, of rebuilding their own lives, by activating latent valences and by assuming new freedoms and roles.

In stage 1, the vast majority of military personnel are concerned with maintaining the youthful shape and structure of the body, the complex of motor and mental qualities specific to age being the result of training in previous periods of growth and bodily development. Thus, the physical vigor is specific at this stage, doubled by intelligence, memory, abilities, fully usable skills with maximum performance. Also, the good ability to master one’s own possibilities and strengths creates a sense of accomplishment, power and spirit, trained to achieve the goal of promotion in the military career.

At this stage, the professional development from a motor and intellectual point of view of the military is completed both by exercising the attributions of the positions they are assigned, and by participating in career and specialization courses organized in military educational institutions. Basically, the foundations are laid and the status of military is finalized, identifying a series of skills and capacities, whose progress is made in parallel with the increase of professional experience. Professional success is obviously conditioned by the military’s biomotor resources, more precisely by his/her psychomotor capacity.

Regarding motricity, top characteristics of the stage that the military go through are reached, as follows: the maximum development of muscle strength in the first phase, decreasing by about 10% around the age of 40; physical endurance capacity is maximum and may remain so until the end of this stage; the accuracy of the movements is at its highest until around the age of 30; high ability to learn movements quickly, especially rhythmic ones; fine and efficient regulation of movements, thus obtaining the best results in learning complex movements specific to the military environment; the easily acquiring of any motor skills, the appropriate native endowment leading to exceptional results.

Consequently, motricity at this age can be found in the following purposes: complex volume of motor skills and abilities; high sensory-perceptual capabilities; improved basic motor schemes; superior capacity to convey messages through nonverbal communication; the ability to exercise independently; superior socializing ability[9].

Stage 2 or middle adulthood is characterized by maximum professional achievement, harmonization of interests and balancing the personality of the military. This age ”is populated by a multitude of stressful events, which significantly affect not only the state of health, but also the psychological configuration”[10].

Physically, there are inherent changes, even if they are installed gradually, at a rhythm that differs from case to case, depending on the genetic endowment of the individual, lifestyle, and how he/she knew how to adapt to the hard trials of military life. Therefore, once the individual exceeds the age of 40, he/she begins to face an involution of physiological indicators (vital capacity, basal metabolism, cardiac index, respiratory capacity) and, in parallel, a change in anthropometric dimensions (body height gradually decreases, while weight increases due to increased adipose tissue, to the detriment of muscle). The passing of the years causes erosions on the physical aspect, the descending slope on which the physical force is engaged continues, and the bones become thinner in density, especially after the age of 50. The motor skills of the individual are affected as the years accumulate.

Motricity has nuanced dynamics during this stage, as follows: the speed of movements decreases slightly even after 30 years of age and growingly after 40 years of age; the accuracy of the movements decreases slightly after 40 years of age and a little more after 50 years of age, but the specific professional demands preserve it quite well for a long time; the intensity of the movements decreases noticeably, even if the military tends to consider it lower than it really is; complex movements, which are of major importance from a professional point of view, are fairly well preserved, especially in the first phase of this stage, and are supported by various motivations and compensations.

Regarding the state of health, mainly after reaching the age of 50, various chronic diseases can be installed – cardiovascular diseases, osteoarthritis, hypertension, diabetes, increased lipid profile, obesity – these can be avoided through a healthy lifestyle and, obviously, through the systematic and continuous practice of physical exercises. In this sense, for the military detected with such pathologies, the development of physical effort must be preceded by a medical check-up and the doctor's opinion, as well as by the guidance of a specialist in physical training and sports activities.

Within the activity of military physical education and sports, the aim is to establish realistic objectives, according to the age and training of the military, as follows: maintaining the capacity for physical effort and an optimal state of health; developing resistance to fatigue and other stressors, ensuring a capacity for rapid recovery of strength; the development of the fighting spirit, of the group cohesion; educating mental stability, moral-volitional and intellectual traits, aesthetic sense and social responsibility.

In conclusion, following a rigorous selection process and after completing the initial and continuous training programs, the military acquires a motricity with a high level of improvement during the period of maturation and professional development (approximately 30 to 40 years of age), during which the motor skills (including those related to the use of weapon systems and military equipment) are capitalized at higher levels. Motor skills, regardless of the age of the military, enrich their biological and psychological heritage. Physical exercise or specialized motor act, as a basic means of physical education and sports, is the biological stimulus that ensures harmonious morpho-functional development, education of motor qualities, as well as the acquisition of motor skills specific to military activities.

NOTES:

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WARM-UP BEFORE PHYSICAL EFFORT – ITS NEED AND IMPORTANCE IN THE ACTIVITY OF MILITARY PHYSICAL TRAINING

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After defining and presenting the types of warm-up, the article highlights the need and importance of performing such an action effectively before carrying out any type of physical effort and especially that specific to military activity. Throughout the article, it is emphasized that a well-planned warm-up, with a relevant content and in harmony with the specific objectives of the training or sports competition, substantially reduces the risk of injury and clearly improves motor performance. Also, the article includes in its final part a warm-up protocol that can be used successfully in the area of military physical training, in which military instructors have the opportunity to develop diversified physical exercises, beneficial for achieving superior performance.

Keywords: warm-up; physical effort; training; musculature; blood flow; breathing; temperature; performance.

Warm-up, in the opinion of some specialists, represents the transition from rest to effort, and others understand this action as the totality of the measures that lead to the installation before effort of an optimal state of sensory and kinesthetic psycho-physical training.

Physiologist Jurgen Weineck stated in 1998 that "By warm-up we mean all the measures that allow obtaining an optimal state of physical and mental preparation before a training or a competition. Warm-up plays an important role in preventing injuries"[1].

So, the purpose of warm-up is represented by the installation of better initial conditions for the manifestation of the neuro-muscular performance capacity, of the organic and psycho-intellectual functions, of a better mental disposition and of the prevention of accidents. Thus, by warming up the body for effort, the coordination between the respiratory, circulatory, locomotor systems and the central nervous system is intensified. As in any activity that requires physical effort and before the military physical education lesson or session or sports training, as well as before sports and military-application competitions, the body must be prepared in order to raise the functional level of large somatic and vegetative systems.

Therefore, for the transition from the state of rest to that of intense physical effort, the body needs a certain time of adaptation, so that at the moment of effective entry into the effort stance, it is at an optimal capacity for functioning. From this point of view, the importance and need for warm-up before exercise is unanimously recognized, as it aims to increase circulation and respiration in muscles, tendons and the nervous system.

As it is well known, any physical training session consists of three parts: the warm-up, the actual training or the fundamental part (with general and specific objectives depending on the established purpose) and the recovery of the body after the effort. The warm-up is of major importance because, if it is not performed efficiently, the fundamental part of the training cannot be performed at maximum capacity, which leads to the non-fulfillment of the set objectives.

In the literature in the field, we find several types of warm-up that are performed before engaging in physical effort. They may be characterized as follows:

- active – in which motor acts and actions are performed before the physical education lesson/ sports training session or individual physical training and before the sports competition;
- passive – it completes the active warm-up with hot showers, massages, ultraviolet exposure, the application of ointments, all with the role of producing vasodilation, so peripheral skin heating;
- mental – a form of training in which participants imagine (through representations) the set of exercises they have to perform, which helps

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the psyche to adjust to the intense activity that follows;

• mixed – the combination of the three forms mentioned. This is actually very effective in sports, being used with optimal results in gymnastics, swimming, athletics, sports with a certain applicability in the army. In the practice of performance sports there have been attempts to supplement active warm-up by using external heat sources (passive warm-up), but these procedures have proven to be ineffective. Also, from the specialized studies performed it became clear that the active warm-up increases the circulatory flow in the muscles 6 times more intensely as compared to rest, while the different forms of massage increase it 1.5 - 2.5 times, depending on the procedure. Certainly, only through active or mixed warm-up can good muscle training be achieved, simultaneously with the improvement of superior nervous activity.

Depending on the purpose, the specialists consider that the warm-up can be:

• general warm-up – which aims to bring the body to a higher functional potential through exercises that produce the warming of a large muscle mass;

• specific warm-up – which is performed through exercises that produce the warming-up that prepares the body for the execution of specific actions and redirecting the blood to the muscles that will come into action[2].

In this sense, we can state that for a good preparation of the body for effort, a general warm-up should be performed that includes active exercises (walking and running variants, stretching and relaxation exercises) followed by the sports discipline specific warm-up for which we prepare during the session or that we have to practice during the sports competition.

General warm-up. The effects of general warm-up on the body are manifested by: increased central temperature (internal organs and brain) and peripheral (extremities, muscles, skin), as well as increased circulation and breathing (preparation of the cardio-respiratory system). At an optimal temperature, all physiological biochemical reactions take place faster and with increased efficiency. Studies conducted so far show that each increase in body temperature by 1 degree Celsius intensifies metabolic processes by about 13%, this increase in metabolic rate being very important even since the warm-up period (for example, this physiological indicator increases, compared to rest, 20 times in a cross-country race and 200 times during a sprint race).

As mentioned, in the sport training session, in the physical training lesson or in sports competitions, warm-up aims to stimulate and accelerate circulatory and respiratory functions, so that, at the beginning of the projected effort, to ensure a high absorption capacity oxygen, which corresponds to the adaptation to the type of effort. It is known that cardiac and respiratory flow are essential parameters in any effort, but especially in endurance, which we find in many military activities.

The main condition for increasing the speed of blood circulation in physical effort is the intensification of cardiac function. At rest, the heart has a flow rate of 4-6 liters/minute of blood. During the warm-up, the amount of blood sent by the heart in the unit of time must be doubled, so that, in the intense efforts of athletes, the cardiac output can reach values of 35 liters/minute. The cardiac output depends, in turn, on the activity of the entire vascular system, on the function of the muscle pump, on the aspiration function of the thorax etc. In order for the circulatory system to be mobilized to the necessary extent, it takes at least 3-5 minutes of sustained physical activity. Simultaneously with the acceleration of blood circulation, during the performance of physical exercises there is an intensification of respiratory function. The value of pulmonary ventilation can increase during physical exertion 10-15 times, changing the frequency and amplitude. Thus, considering the fact that the respiratory flow while resting is 8 liters/minute, we estimate that in medium intensity efforts it is 30-40 l/min, and at high and very high efforts it can reach 100-150 liters/minute, even 200 liters/minute (supramaximal effort)[3].

As such, by warming up the cardio-respiratory system, the following reactions occur in the human body:

• the adaptation time to the effort to be made is reduced;

• the stable state is reached after 4-5 minutes;

• cardiac output and respiratory rate increase, especially in endurance effort;

• it facilitates the transport and use of oxygen in the blood by the muscles involved in the effort and not only;

• the maximum oxygen volume (VO2max = oxygen consumption expressed in milliliters/kilogram body/minute) reaches after 3 minutes an approximate value of 3 liters for non-trained and 6 liters for trained people;

• the artery-venous difference decreases by better oxygen extraction, and the venous blood is poorer in oxygen, a beneficial reaction for the body;

• it helps to eliminate, overcome the ”deadlock” during the effort.

Warm-up is not only intended to intensify the circulation and breathing beforehand, but also to warm the musculoskeletal system. Regarding the locomotor system, warm-up reduces the risk of accidents (ruptures, cracks). The joints better support the load from the effort due to the fact that the high temperature amplifies the production of synovial fluid. Thus, the articular cartilage has better nutritional conditions, thickens and better absorbs pressure forces. Also, the increase of the intra-muscular temperature contributes to a better irrigation with blood, by opening the capillaries and, therefore, to a better nutrition and oxygenation of the muscles, as well as an activation of the anaerobic enzymes involved in the energetic-genetic processes.

Classical physiology held that raising the temperature of the muscle was enough to increase athletic performance. Subsequently, it was demonstrated experimentally that a stay of 20 minutes in the sauna before exercise has only a minor effect on efficiency, compared to increasing the results by 4-6%, in the case of warm-up by running. According to ”van'T Hoff's law”, the speed of chemical reactions in a given system increases in parallel with the increase of the system temperature, with every 10 degrees Celsius, the speed of these reactions accelerates 2.7 times. In the body, the increase in temperature after exertion is only 1.02 degrees Celsius, but enough to accelerate by 30-50% the speed of biochemical reactions. On the other hand, a warming muscle is more excitable and therefore contracts and relaxes faster. During this time, warm-up largely removes the possibility of muscle fibers breaking, an accident known in sports as ”clacking”[4].

To stimulate and maintain warming, an important contribution is made by the use of adequate equipment, which certainly influences it. Adequate equipment helps to reduce time of the body to adapt to exercise. Given that the normal body temperature at rest is 36,5 degrees Celsius and that at this temperature all metabolic functions are optimally regulated, it is necessary to specify that the intramuscular temperature, especially of the muscles at extremities, is lower by 2-5 degrees Celsius or more. This lower muscle temperature can be partially avoided with the help of the equipment, but not completely. The preparation of the body for effort executed in adequate equipment, consisting of a special material specific to the sport, favors the increase of heat production that levels the temperature differences. In this way, after warming up, the temperature of the muscles increases, allowing the execution of movements with high amplitude and speed. At the same time, the chemical processes at the muscular level are influenced, which contributes to the activation of the fermentative processes, which, in turn, influence the speed and duration of the chemical reactions necessary for the muscular contractions. Raising the temperature of the muscles creates favorable conditions for the release of oxygen by hemoglobin and its faster passage to the tissues.

Raising the temperature has a favorable influence on the athlete's body, contributing to thermoregulation. Maintaining a good functioning of the nerve centers is possible only when the body temperature rises, by warming, to an optimal level, but without reaching values that are too high. In this respect, consequently, during the warm-up, the intensity and volume of the exercises used should not be exaggerated. If, in advance, there was no warm-up and the effort was made directly, the heat dissipation would remain after its production, because perspiration appears, in this case, after a certain time from the beginning of the effort, which represents an imbalance between heat production and release and is unfavorable to the athlete's performance. By warming, perspiration occurs, which demonstrates that the thermolysis mechanism has been set in motion and, therefore, the thermal equilibrium is in a dynamic state, being able to intervene more promptly when a thermal homeostasis disorder occurs.[5]

Warm-up gradually prepares the central nervous system (CNS) for the transition from rest to the state of maximum excitability, which is accompanied by a higher level of activity of all organs and systems. Through the whole complex of excitation types it triggers, especially the kinesthetic excitations, the warm-up produces a state of mental relief, and by metabolizing appreciable amounts of andrenergic catecholamines (adrenaline and noradrenaline), which are metabolized during specific exercises, athletes partially relieve nervous tension and irritability on the day of the competition (decreases mental tension in the starting state).

It also increases the reaction rate of the effectors by a percentage of about 20% and activates the reticulated bulb-pontine formation with a role in maintaining alertness, increased attention, good coordination and accuracy. Consequently, warm-up also stimulates the psychological processes that create within the performer a greater desire to work.

Specific warm-up. The specific warm-up mechanisms in training follow the general warm-up and must prepare the participant for the execution of the main exercises in the lesson or competition. In specific warm-up, more than in general warm-up, it is especially important to raise the local muscle temperature which happens late, even if the central temperature is high. Only a specific warm-up can ensure an optimal blood flow in the muscles that perform the fine movement, that of coordination. However, specific warm-up is not only the creation of the necessary condition for good coordination, but also an amplitude of metabolic processes in somatic and vegetative effectors, through a better redistribution of blood to the muscles involved in the effort that will follow. On the other hand, it activates the sensory part through specific motor centers and areas, increases nerve conductivity and beats the nervous ways as traces of specific warming.

Specific warm-up works according to the following basic principle:

Regarding the military physical education lesson, the warm-up is placed in the 2^{nd} (preparation of the body for effort) and 3^{rd} sequences (selective influence/analytical processing of the musculoskeletal system) of the 7 or 8 sequences, depending on the structure of the lesson.

Preparing the body for effort, which lasts 5-7 minutes (for a 50-minute lesson) or 7-8 minutes (for a 100-minute lesson), has as objectives: the gradual stimulation of the major functions of the body; ensuring a state of excitability appropriate for the following activity; educating spatial-temporal perceptions. Its content is represented by: front and formation exercises; walking and running variants; movement games. *The selective influence/analytical processing of the musculoskeletal system* with a duration of 6-7 minutes (50-minute lesson) or 10-12 minutes (100-minute lesson) has as objectives: increased segmental muscle tonicity and trophicity; education of global or partial body attitude; preventing or correcting certain physical attitudes or deficiencies. Its content is represented by exercises – grouped in series – free, with a partner, with objects, executed simultaneously or at own pace[6].

Regarding the sports training sessions and sports and military-applicative competitions, the warm-up is usually carried out, following certain clichés specific to the respective sports branch.

Irrespective of the type of physical activity, the effectiveness of warm-up depends on the following factors: age; training state (for beginners a soft warm-up is recommended); time of day (in the morning warm-up will be longer than in the evening); the specifics of the effort; ambient temperature.

In my opinion, in any military physical training session, the warm-up of the body should last between 15 and 35 minutes, depending on the duration of the session and the objectives set. It is imperative to keep in mind that the optimal interval between warm-up and effort is 5-10 minutes, even if the warming effect persists between 20 and 30 minutes and that, after 40 minutes, the functional and metabolic values return to the level of rest period.

In addition to the classic sports branches, in the army, the physical training and sports activities have a certain specificity, depending on the topic approached, namely: varied terrain running and forced marching with the armament and equipment; close fighting; obstacle course crossing; long-distance patrols on foot or on skis during which shootings are performed with infantry weapons, throwing grenades, passing contaminated districts wearing the gas-mask on the face; applicative-military swimming (with the equipment and armament provided) etc. These are just a few examples, but each military branch has its own peculiarities regarding physical effort, which leads us to the conclusion that warm-up plays a very important role in these activities, even if every military is trained to be ”ready for action” at any time, without prior time for warm-up. However, on the basis of general aspects of the effort specific to physical training and sports in the army, we can specify that blood circulation and breathing are the main task of warm-up. In contrast, most military physical actions require the coordination of neuromuscular activity, which means that warm-up cannot be effective without repeated execution of the specific movements of that action.

In this context, I consider that in many of the military physical activities, which require the use of many motor skills in the same activity, such as walking on rough terrain, running in various terrain (speed or endurance), sliding on snow/ice, jumping (length, height, depth), throwing, shooting, crawling, climbing, you can follow a warm-up model similar to that developed by *Ian Jefreys*[7] (RAMP warm-up protocol).

The acronym ”RAMP” means: Raise – increase in muscle temperature, blood flow, muscle elasticity and neuronal activation; Activate – activation of the muscles in preparation for the next session (fundamental part of the session/ sports competition); Mobilize focus on the types of movements that will be used during the activity; Potentiate – gradual increase of stress on the body in order to prepare the sports competition/ fundamental part of the training session[8].

I would say that in the military it is necessary to use such a prototype warm-up program in order to meet the four directions/phases mentioned that serve to improve performance and reduce or prevent injuries. Thus, a warm-up that is based only on a slow run, followed by a few static stretches, should not be a habit in the activity of military instructors, but on the contrary, given the multitude of information available today, it is necessary to use modern means in order to meet the desired objectives.

Therefore, *in the first phase (raise)* two types of protocols are used, namely movement development protocols (exercises are performed from the running school and the jumping school, aiming at the progressive increase of the execution speed) and skills development protocols (which involves performing at low intensity the motor skills specific to the fundamental part of the training or sports competition (these may increase over time and must be correlated with the objectives of the activity). *In the second phase (activation and mobilization),* practically the muscle groups are activated and the joints are mobilized, taking into account the movements and the fundamental requirements imposed by the activity (sports) to be carried out. In this phase, instructors are encouraged to develop numerous exercises that activate and mobilize key muscles and joints through intervals of movement, useful means in establishing a variable workout, in eliminating monotony and improving performance (muscle stretching exercises, mostly dynamic stretching; balance, moving from different gymnastics positions to positions that will be adopted in the next activity, different types of squats and push-ups, joint mobility exercises, especially spine mobility - flexion, extension, bending, rotating, etc. Depending on the objectives of the following activity, these exercises can be performed using your own body weight, with a partner or with auxiliary objects that make the movements difficult – elastic bands, light dumbbells, sticks, weapons and some military equipment, etc.). *The third phase (potentiate or performance)* is based on exercises performed in order to effectively lead the participants to improve performance in the fundamental part of the training session or in the sports competition. Developed using the principle of post-activation potentiation, this warm-up phase transits unidentifiably into training/sports competitions, which means that it begins to incorporate acts and motor actions specific to that activity using increasing intensities. The main objectives of this phase are both the use of an intensity of effort at a level comparable to that in which participants are about to evolve, and the improvement of subsequent performance through the effects of post-activation potentiation[9].

In conclusion, warm-up before any physical effort is absolutely necessary and of overwhelming importance. A carefully planned warm-up, with a content designed in accordance with the objectives of the training or sports competition, reduces the occurrence of injuries and improves motor performance.

NOTES:

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CONTRIBUTIONS OF PHYSICAL EDUCATION AND SPORT TO THE ACHIEVEMENT OF THE UN 2030 AGENDA SUSTAINABLE DEVELOPMENT

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The article summarizes the 17 priority goals of the United Nations on sustainable development in the 2030 Agenda. These goals are to save the planet, care for its ecosystems and increase the quality of life of people around the world. In addition to the systematic approach to the objectives of the 2030 Agenda, the article highlights the link between physical education and sport and the development possibilities of society in other fields, so that the theory can materialize in practice. Their parallel presentation, in this format, is a strong enough motivation to draw attention to the field of interest and understand it much more deeply and demonstrates that physical education and sport represent a complex system with values, specific means and valences, which, properly valued and used in an ingenious way become viable ways to achieve the 17 goals of sustainable development.

Keywords: physical education; sports; sustainable development; objectives.

The United Nations is the most important organization in the world, whose priority missions are: to ensure world peace; to facilitate cooperation among states of the world; to mediate possible conflicts between them; to guarantee and to respect fundamental human rights and freedom, as well as sustainable development, a concept that refers to the existence of a permanent mediation between economic and social progress, while protecting the natural balance of the Earth.

Physical education and sport, the values and means of these activities, used in a smart and interesting way, become sustainable levers that serve sustainable development, thus managing to help achieve each goal contained in the current strategy of the United Nations. Thus, the objectives of this article start from the need to know the possible involvement of physical education and sport in all other social branches, to understand this field as a vector or link between all areas that promote social evolution, and to deepen the objectives of the 2030 Agenda as benchmarks for future management of physical education and sports.

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The dimensions of sustainable development, basic pillars of guaranteeing a good-quality living for all the inhabitants of the planet

Sustainable development represents ”the development that seeks to meet the needs of the present, without compromising the ability of future generations to meet their own needs”[1]. Starting from the basic idea of this concept, mainly to guarantee the quality of life for all the inhabitants of the planet, both now and in the future, the UN is constantly concerned with identifying solutions and taking measures to guide the evolution of human society, the economic and social process in the future, by generating sets of values that concern man, the individual, one’s current needs and those of future generations, in conjunction with the protection of the natural environment and the conservation of our planet’s ecosystems. In this regard, on 25 September 2015, at the UN Special Summit held in New York, Resolution A/RES/70/1 ”Agenda 2030 for Sustainable Development - Transforming Our World” was adopted, which aims to fulfill 17 objectives (SDGs) on sustainable development, 169 complementary targets, general and universal objectives and also the balance between the three defining dimensions of sustainable development: the social dimension, the economic dimension and the environmental dimension. The three pillars underpinning the 2030 Agenda for Sustainable Development have been defined since 1987 in the Brundtland Commission Report[2]:

The social dimension (of social equity) ensures basic needs for quality of life such as employment by creating new jobs, food, providing utilities (water, energy, sewerage) in under- and middle-developed countries.

The economic dimension (of economic growth) is necessary for developing nations to reduce the gaps in quality of life compared to developed countries.

The environmental dimension (environmental protection and preservation) envisages the gradual change of the way of development and the use of new, ecological technologies that protect and conserve the environment and improve the available natural resource base. The document has direct implications for the internal and external policies of the world's states, and all countries and stakeholders are mobilized to carry out this very ambitious project. This resolution, paragraph 37, states that ”Physical activity and sport are an important factor in sustainable development. We recognize their growing contribution to the achievement of development and peace, to the promotion of tolerance and respect and the contribution they make to the empowerment of women and youth in communities, and to the achievement of health, education and social inclusion goals”[3].

Physical education and sport, vectors with major potential for sustainable development

In the UN vision, physical education and sport are activities with great potential in sustainable development, which can be constructively involved in achieving all the objectives (17 objectives) of the UN 2030 Agenda[4]: eradicating poverty; eradicating starvation; health and well-being; quality education; gender equality; clean water and sanitation; clean and affordable energy; decent work and economic growth; industry, innovation and infrastructure; reduced inequalities; sustainable cities and communities; responsible consumption and production; climate stabilization actions; aquatic life; terrestrial life; peace, justice and efficient institutions; partnerships to achieve the objectives.

In this presentation, objectives of Agenda 2030 – physical education and sports, I indicated in parallel, in summary, following the study of the main current bibliographic resources, my personal vision on the chances of further integration of physical education and sports in all social fields.

The eradication of poverty, in any context, form and geographical area, is an objective aiming to drastically reduce the number of people living in extreme poverty, to stimulate the co-optation of those able to work in the labor market, to develop a system of protection and social assistance. Physical education and sport, through specific skills and values, can play an important role in eradicating poverty and creating a long-term, sustainable and prosperous life. Thus, part of the revenues obtained through specific actions (demonstration matches, sports competitions, auctions with objects of some personalities from the phenomenon), advertising and other activities that produce money, can be used in programs and partnerships to achieve this noble goal.

The eradication of the phenomenon of starvation is an objective that aims at a sustainable and efficient development of the agro-food sector, food security, as well as improved nutrition based on products from sustainable agriculture. The efficiency of this sector has important effects in improving and increasing the quality of life of people and ensuring a civilized life for all citizens, as well as encouraging organic production. Through specific educational initiatives, the field of physical education and sport provides support in eradicating malnutrition and combating obesity and can also be a model for healthy eating and food security by choosing, promoting serious and responsible producers and addressing the impact of food waste. Activities specific to this field have the power to change people's behaviors, channeling them to a sustainable future.

Health and well-being. Guaranteeing a healthy life, ensuring and promoting the well-being of people at any age. The main objective is to reduce the mortality rate (especially for children), to reduce the incidence of viral and infectious diseases, as well as chronic pathologies. The aim is also to prevent and treat drugs and other harmful substances addictions and to treat mental illness. Practicing physical activities and thus, adopting an active lifestyle result in a positive mood, increasing self-confidence, reducing stress levels, important factors resulting in people's health and well-being. Physical education and sport can be used successfully in health education and the concept of healthy and active living.

Quality of education. Ensuring a good quality of education and promoting lifelong learning opportunities for all. This objective aims in particular to ensure that all children have access to a quality education system, regardless of resource possibilities, geographical area or ethnicity, and to reduce school dropout. Moreover, there is a desire for a significant increase of the number of individuals, both young and adults with different professional skills necessary to obtain a decent job or to develop entrepreneurial activities. Quality education results in the acquisition of the knowledge and skills necessary to promote the sustainable development of society. Physical education and sports have a strong motivational role for children and young people, encouraging them to participate in classical, formal and informal education, helping them to improve their learning outcomes and increase their academic performance. Physical education and sport have the quality of creating opportunities for learning outside of school, helping to form and educate key life skills and values, such as tolerance, self-sacrifice, self-help and camaraderie.

Gender equality. Achieving gender equality and strengthening the empowerment of women in society. The aims of this objective are to prevent and combat violence against women, their unrestricted access and equal opportunities in obtaining employment and leading public, economic and political positions. On this point, physical education and sport play an important role in training and equipping women and young people with knowledge, skills and abilities, stimulating their progress in contemporary society and resulting in the elimination of discrimination against them. Gender equality is also promoted through physical and sports activities.

Clean water and sanitation. To ensure the availability and sustainable management of water and sanitation for all. The objective aims to increase the standard of living and quality of life by ensuring civilized sanitation and hygiene conditions (public services, water and sewerage networks), especially those in vulnerable situations, compliance with international standards on drinking water management, water recycling waste and also increase the efficiency of the water use process, encouraging recycling and reuse to address the problem of water scarcity. Within the activities specific to the field of physical education and sports (swimming, rowing, etc.) specific actions can be promoted on improving water quality, reducing discharges of pollutants and recycling of wastewater. Also, a first step that can serve as a model in water management is to increase the efficiency of water use in sports complexes and facilities.

Clean and affordable energy. To ensure everyone's access to affordable energy in a safe, sustainable and modern way. This objective aims to increase the comfort and quality of life by ensuring unrestricted access to energy sources for all individuals and communities. It also aims to protect the environment through increased transfer to alternative sources that use renewable energy and low hydrocarbon fuels. The field of Physical Education and Sport can play an important role in achieving the objectives of using renewable energy, increasing energy efficiency and access to clean energy by applying and complying with industry standards and recommendations. Through specific activities, actions and campaigns can be initiated to support ensuring free access to energy, for all people and communities.

Decent work and economic growth. To promote sustained, open and sustainable economic growth, full and productive employment and decent work for all. This objective aims at: sustainable economic growth; permanent creation of new job vacancies; entrepreneurship; technological modernization and innovation, ensuring decent working conditions for all citizens, regardless of age; inclusion of people with disabilities in the workplace; fair remuneration and access to various sources of funding. Also, this objective promotes cultural diversity, products with zonal and local specificity, respect for customs and traditions, for the particular environment in which we live. The values of physical education and sport can play an important role in promoting sustainable and constant economic growth by eliminating all forms of discrimination and relating production and employment to specific labor standards, resulting in the creation of multiple employment opportunities, employment and skills development skills.

Industry, innovation and infrastructure. To build resilient infrastructure, to promote sustainable industrialization and to encourage innovation. This objective aims for the quality development and sustainable infrastructure to support economic progress and increase the quality of life of all people, modernize infrastructure and make industries profitable through refurbishment based on environmentally friendly methods, develop scientific research and increase the number of employees in this field, intensify collaboration of the state with the private market, encouraging innovation. Physical education and sport can stimulate innovative approaches to industrialization and can constructively inspire research and innovation processes. The contribution of sport-specific activities to this goal can be materialized by ensuring equitable access to sports infrastructure and also by supporting the construction of new gyms and modern sports facilities.

Reduced inequalities. To reduce inequalities within and from one country to another. This objective aims to reduce the gaps, eliminate all discrimination and initiate policies on the progressive achievement of equality between states and between people, in all areas (fiscal, wage, educational and social protection), promote social values such as equality, tolerance, diversity, social inclusion, regardless of geographical area, age, sex, race, ethnicity, origin, sexual orientation, gender, religion, social status, having the opportunity to successfully resolve the elimination of inequalities and injustices; and in hard-to-reach areas, thus integrating human communities.

Sustainable cities and communities. Development of cities and human settlements so that they are open to all, safe, resilient and sustainable. The aim is to ensure the necessary conditions for a dignified life for all people, both urban and rural, through access to basic services and efficient public transport, all at affordable costs, the protection and conservation of cultural heritage and the reduction of negative impact on the environment. Physical education and sport can serve to overcome obstacles and barriers of any kind, from the environment, transport or public services by ensuring unrestricted access for all to its facilities and helping those in vulnerable situations. Also, the use of public spaces specific to the field of physical education and sports such as gyms, stadiums, etc. encourages and facilitates human interaction and socialization.

Responsible consumption and production. To ensure sustainable consumption and production patterns. The objective aims at the gradual transfer to an innovative development model, characterized by increasing the efficiency and productivity of resources, good waste management and reducing the phenomenon of food waste. In order to achieve these elements, the aim is to reduce consumption, recycling and reuse, as well as to encourage companies and enterprises to implement sustainable production practices in the field of public procurement. All these aim to increase the awareness of the population on what means a lifestyle led in harmony with the natural environment. Physical education and sport can play an important role in this new development model that promotes environmentally friendly lifestyles and natural resources by organizing and promoting education and awareness campaigns and promoting services and industries beneficial to these new world guidelines.

Climate stabilization actions. Take urgent action to combat climate change and its impact. The aim is to find the best and most viable solutions to combat the dangers and adapt to climate change in recent years, to reduce the consequences of natural disasters and to increase the level of education and awareness of these climate changes and their influence. Through specific activities, sports-based projects and messages on climate change, the field of physical education and sport can actively contribute to campaigns to combat the effects of these changes, raise public awareness of these phenomena and encourage and support a return to normalcy and reconstruction. facilities in disaster-affected communities.

Aquatic life. Preservation and sustainable use of oceans, seas and marine resources for sustainable development. The main courses of action of this objective are: prevention and reduction of the effects of contamination and pollution of the marine environment; protection and conservation of marine ecosystems and coastal areas and ensuring the conditions for sustainable fishing. In this respect, physical education and sport also contribute to this sector of activity, through organized sports actions and events, especially those in the field of water sports, which can promote the protection, conservation and long-term use in a balanced way, of the seas and oceans.

Earth life. Protecting, restoring and promoting the sustainable use of terrestrial ecosystems, sustainable forest management, combating desertification, halting and repairing soil degradation and halting biodiversity loss. This objective aims at: protecting, conserving, using and sustainably managing terrestrial and mountain ecosystems; stopping illegal and uncontrolled deforestation; combating the phenomenon of desertification; restoration and reintroduction into the agricultural circuit of lands with degraded soils, affected by drought, floods and desertification; development of green infrastructure; protection and conservation of wetlands and support for research in the field. Physical education and sport can contribute to and support the conservation, protection and sustainable use of ecosystems, also through actions, activities and messages of a suggestive nature, which encourages practices and protection measures and aims to raise public awareness of respect for the environment.

Peace, justice and efficient institutions. Promoting peaceful and inclusive societies for sustainable development, access to justice for all and the creation of efficient, responsible and inclusive institutions at all levels. This objective aims at: the development of the social capital; promoting peace, tolerance and understanding between people; cultivating non-violence on all levels; eradication of corruption; development and modernization of state institutions; increasing the level of representation of citizens at all levels of the decision-making process; protecting the interests and respecting the fundamental freedoms of the people and ensuring free and unrestricted access to information. Physical education and sport through their core values such as fair play, respect for the adversary, self-help and teamwork, represent a powerful channel for communication, transmission and dissemination of messages of unity and reconciliation and provide a favorable framework for promoting peace, understanding and dialogue between people and states. It also militates through its entities and institutions for a correct policy, an efficient government and promotes the respect of fundamental human rights.

Partnerships to achieve goals. Strengthen the means of implementation and revitalize the global partnership for sustainable development. This last goal of the UN 2030 Agenda for Sustainable Development aims at respecting all actors involved, the international commitments made on sustainable development, identification in the debates within the UN, EU and other international institutions is the sustainable development of viable and realistic solutions for supporting developing countries, stimulating investment and other initiatives, economic activities and voluntary projects, which promote principles, methods and practices conducive to the sustainable development of developing countries.

The field of physical education and sports has unsuspected resources that, set in motion, are able to bring people together, generate synergies, create networks and form partnerships with entities from a multitude of different sectors, but interested and engaged in the fight for peace, and sustainable development.

Given the objectives of the 2030 Agenda as a projection for the development of society, personally, I can strengthen the image of the field of physical education and sports and its involvement for sustainable development by indicating some concrete examples in this regard:

- sports events organized by the Invictus Team Romania Association in which volunteers, military and civilians, support various charitable causes (Invictus Paralympic Games, Royal Duathlon, Veterans Relay, etc.);
- the charitable events organized by the ”Roger Federer Foundation” called ”The Match in Africa”, involving the participation, besides R. Federer, of various prominent personalities of public life such as Bill Gates, Rafael Nadal, Andy Murray, Trevor Noah, etc. on the occasion of which important funds were raised for the realization of some solidarity projects on the African continent (in 2017 at the match organized in Seattle they raised around 2,000,000 dollars);
- *Swimathon*, one of the largest charitable sporting events in Romania, organized with the stated purpose of raising funds to ensure easier access for children from disadvantaged rural areas with serious chronic diseases to free medical services and the implementation of a pilot service treatment and monitoring of the patient at home.
- Gerar half marathon, a traditional sports event among runners in Romania organized by the Sports Club RO CLUB MARATON and the association People for Sport Romania in partnership with

the Polytechnic University of Bucharest and the Bucharest Running Club Association with stated objectives such as waste reduction, environmental protection and support community.

In conclusion, the 2030 UN Agenda for Sustainable Development is an extremely ambitious and important strategy for the future of the planet and for the progress and quality of life of its inhabitants. All 17 sustainable development goals are universally applicable, are interconnected, have a global character, in their achievement all countries, regardless of the current level of development, represent a common responsibility. Therefore, the UN and the Member States are constantly focused on identifying solutions and methods to achieve these goals, and, as presented earlier, the use of the values and resources characteristic of the field of physical education and sport is one of the viable ways to achieve them.

In my opinion, the support of the physical education and sports system and the involvement of all decision makers for the use of this field would bring added value to the entire Romanian society in the medium and long term. The present article may have the effect of increasing the awareness of the main objectives of the UN 2030 Agenda both by those working in the field and by the general public, a planning of future sports activities in view of these objectives, giving due importance to physical education and sport by all specialists in all social fields, as well as capitalizing on the resources of this field to contribute to the sustainable development of society.

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