

# Rising Significance of the Air Force in Current Unpredictable Security Environment

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DOI: 10.13111/2066-8201.2020.12.2.20

*Received: 02 March 2020/ Accepted: 05 May 2020/ Published: June 2020*

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**Abstract:** *This paper is a continuation of the ongoing research of authors whose, within the framework of interdisciplinary scientific research, deal with various aspects of ensuring the security and defence of the Slovak Republic and states that are members of the North Atlantic Alliance and the European Union. In their research, the authors point out a deterioration of the global and regional security environment, the growth of symmetrical and asymmetric security threats, the continued deterioration of the security situation in some regions, and negative consequences for the level of security and defence of states and their citizens. In order to contribute to the development of security and military science, the issue of the Air Forces and their extraordinary importance in guaranteeing comprehensive security and defence of the state and simultaneously ensuring collective defence in cooperation with the allies from NATO and EU is addressed and widely elaborated.*

**Key Words:** *Air Defence, security, defence, science, states, threats, environment, situation*

## 1. INTRODUCTION

Security and defense have never lost their significance, it has always been at the center of interest not only for politicians, soldiers or security experts, but also for many researchers or practitioners [1-4]. Due to the deepening of some security problems near the borders of the Slovak Republic and other Member States of the European Union and simultaneously of the Member States of the North Atlantic Treaty Organization, issues of ensuring the security and defense of the states and their citizens have become increasingly important in recent turbulent years [5-8]. This is also an issue due to the continuous growth of several military and non-military security threats, which are contributing to the deterioration of the security situation on the European continent. In addition to diplomatic and political tools, military tools in the form of Nation States' Armed Forces, including Army, Air Force, Special Forces, Navy, Logistics, Intelligence, and naturally, other specialized military units, are very important in ensuring the security and defence of EU and NATO Member States.

Air Defence, which is the subject of ongoing research by the authors of the article, plays an extraordinarily important role within them. The authors therefore, while using relevant

scientific research methods, thoroughly elaborated on this issue and brought readers, from the academic and security community, their views of the examined subject [9-12].

## 2. GENERAL BACKGROUND

From the point of view of guaranteeing security and defence of the state, one of the basic tendencies of current security environment development is deepening instability, uncertainty and unpredictability of its further development as a consequence of increasing influence of non-state actors, increasing number of failing states and intrastate conflicts, uneven development and deepening regional differences, demographic developments, mass illegal migration, uncontrolled dissemination of information, communication and military technologies, cross-border organized crime, drug and white meat trafficking, increased ethnic and religious intolerance, extremism, xenophobia, intolerance and nationalism, as well as increasing dependence on vital resources, limited access to them, and environmental degradation.

Globalization is another phenomenon that is very much involved in influencing the current situation not only in the security area, but also in the political, economic, technological and environmental environment, as well as in other sectors of human society. It is a highly dynamic multidimensional process in which political, economic, social, military-strategic, security, technological, environmental and other factors overlap and interact, creating a new system of international political, economic, security and social relations.

However, in addition to many positives, globalization also raises several geopolitical, geoeconomics, environmental and social problems. According to Baričičová, globalization is not only changing stability and security, but also increasing the vulnerability and dependency of states [13]. The security environment of the Slovak Republic, as well as most of its European allies from the EU and NATO, is considerably affected by the conflict and situation in Ukraine, illegal migration, activities of foreign intelligence services, cyberattacks on public and private computer networks, terrorist threats, and a number of other asymmetric threats gradually emerging in recent years. In general, the current security environment is much more complicated and less predictable, what limits not only the possibility of defining it and the basic trends of its further development, but also the possibilities and level of ensuring the security and defence of states.

In any case, the Slovak Republic, despite being a member of the North Atlantic Alliance and the European Union and taking full advantage of the collective defence system, is obliged to ensure its security and defend its freedom, sovereignty, independence, territorial integrity, state borders, as well as democratic establishment. Of course, it is also obliged to ensure the security, defence and protection of its citizens. This can be achieved, among other elements, through its potential of the Armed Forces of which the Air Force element, including its units, elements, equipment, systems and military and civilian personnel, is an integral part.

## 3. AIR FORCE AS A GUARANTOR OF THE STATE AND ALLIANCE SECURITY

Air Force, together with the Army, represents the main and decisive combat force of the Armed Forces of the Slovak Republic. They consist of fighter, tactical, transport and helicopter aviation, air defence forces and forces and means of command, control and reconnaissance. The primary mission of the Air Force is to ensure the continuous defence of the Slovak airspace, to protect the Alliance airspace and to support international military operations in

accordance with international treaties and other accepted international commitments in the area of its responsibility. The main tasks of the Air Force are in particular:

- Provide continuous defence and inviolability of the Slovak Republic's airspace within NATO's Airspace through the NATO Integrated Air and Missile Defence System (NATINAMDS), which detects, monitors, identifies and monitors objects in airspace (aircraft, helicopters, unmanned aircraft or ballistic missiles) against which it deploys, if necessary, land or air vehicles. NATINAMDS is implemented through the NATO Integrated Air and Missile Defence (NIAMD) mission, which aims to defend the Alliance's territory against the threat of air and missile attack in times of peace, crisis or conflict. The NATINAMDS system was created by the combination of NATO Missile Defence (NATO MD) and NATO Integrated Air Defence System (NATINADS) [15].
- Provide air defence, which includes all measures designed to nullify or reduce the effectiveness of enemy air strikes [16]. Air defence means include ground or airborne weapon systems, associated sensors, control and control mechanisms, and passive measures (eg. barrage balloons). The task of air defence is to protect the Armed Forces anywhere.
- Provide missile defence, which is a tactical-strategic defence tool against the primary existence of a threat of missile attack, through medium and long-range ballistic missiles.
- Fulfil the commitments of the Slovak Republic in the framework of international crisis management.
- Deploy its forces and means in order to save the lives and property of Slovak citizens within national crisis management.
- Provide air support to ground and special forces, ensure troop mobility and execute rapid manoeuvre.
- Participate in peacekeeping activities in the air rescue and aeronautical search and rescue services as well as to operate in the framework of the Integrated Rescue System and to fulfil the tasks arising from the laws and interdepartmental agreements adopted [17].

In terms of compatibility with the Allies Air Force, further efforts in developing their capabilities need to concentrate on the acquisition of such equipment and armament, which is also in place in other NATO and EU Member States and meets all operational requirements to operate not only in current but also future operations. There are requirements mainly for:

- deployability - efficient and effective use of aviation in favour of its own and/or coalition forces, and flexible and rapid deployment of forces and means to the area of operation without geographical restrictions;
- mobility - ensuring high mobility and rapid deployment of surface-based air defence means and efficient use of multi-purpose and combat helicopters to support army;
- security and resilience - improving combat support and combat service support and progressive equipping of aircraft, helicopters and surface-based air defence systems with modern CBRN means;
- destructiveness and punctuality - an important aspect of the fulfilment of this capability is the use of information on the position of the objectives of interest in conjunction with army based on the effective use of information obtained from UAVs;

- sustainability - integrated logistics must fully support the change and replenishment of forces and means throughout the operation, while being smooth and mobile at all levels of combat activity;
- accessibility - presents the ability to maintain forces with the required capacities and capabilities to perform specific tasks in combat operations, based on thoughtful long-term planning, the creation of sufficient reserve forces and means and their effective deployment;
- effective intelligence and networked environments - fully utilizing information networks, resources across the spectrum of intelligence structures in conjunction with C4ISR's (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) technical capabilities and other deployment and capability systems integrate own resources into the coalition grouping system;
- special operations - provision of forces and means for special operations to ensure the transport, deployment and fire support of forces and means for special operations, also to perform accurate air strikes on targets of special importance;
- decision-making supremacy - the aim is to achieve and maintain information supremacy and situational awareness at all stages of the operation.

#### **4. STATE RESPONSIBILITY FOR SELF-DEFENCE AND COLLECTIVE DEFENCE**

As mentioned above, the burden of responsibility for its security and defence lies primarily with the Slovak Republic itself, like any other states for their security and defence. However, the increasing global competition, the ongoing technological and information revolution and the dynamic evolution of the security environment create the need to address security threats and challenges through international cooperation. Therefore, the Slovak Republic emphasizes the importance of its active membership in international organizations, especially in the European Union and the North Atlantic Alliance, which, despite current trends, remain the basic pillars of its security and defence and a natural space for implementing its security and defence policy. Integration in the EU and NATO is an institutional expression of the civilization membership of the Slovak Republic, strengthens its foreign-political influence and broadly supports its development. For the Slovak Republic, as well as its European allies, the EU is a living and value space and NATO is a security and defence pillar.

In terms of Slovakia's membership in the North Atlantic Alliance, the security and defence policy of the Slovak Republic is clearly based on this membership and the main mission of the Alliance – to ensure collective defence and defence of common security interests of NATO Member States. Therefore, the Slovak Republic strives to build its Armed Forces in accordance with the adopted strategic concepts and documents of the Alliance, so that its Armed Forces should be able to ensure their own security and defence and participate in the fulfilment of collective defence tasks. This, of course, has a major impact on all aspects of planning, preparing, generating forces, training, usability, maintenance, development and, finally, the financial security of the Armed Forces. After the transformation, the Slovak Armed Forces should be able to participate in a wide range of Alliance operations through their troops without territorial and time constraints. From the perspective of Slovakia's membership in the European Union, it is essential that the Armed Forces, in participation in Union operations, be able to perform a wide range of tasks in combination with a political and economic approach based on the overall EU approach to addressing security problems. As in the case of

participation in NATO operations, dedicated forces, irrespective of whether they are ground, Air or Special Forces units, must be able to perform specified tasks in an operational environment that includes not only physical (e.g. space and distances) and human domain (e.g. international law and democratic values), but now also cyber domain (e.g. gathering and collecting information in cyberspace) and their combination. Irrespective of whether NATO or EU operations are involved, the Armed Forces should be able to engage in military operations conducted under conditions of rapid change, uncertain future, complexity, interdependence and new trends requiring a new approach and new rules to meet strategic, operational and tactical objectives. This means that the Armed Forces must expand their capabilities and capabilities so that, in addition to defending their own state territory, they are able, if necessary, to make a full contribution to the defence of the Allies and together with them in international crisis management operations to prevent conflicts and contribute to crisis management, and maintaining peace and security in the world. It is the experience of participating in NATO military operations, EU missions or other international crisis management operations (e.g. UN-led peacekeeping missions), that the military-strategic principles and operational principles are based on the latest military knowledge and are the basis for developing new capabilities of the Armed Forces and to increase their operational readiness [18]. However, a prerequisite for maintaining existing ones and building new capacities and capabilities is to allocate an adequate amount of financial resources.

## 5. CRUCIAL FINANCIAL ASPECTS

Maintaining existing and building new capacities and capabilities of the Armed Forces, in accordance with the above tasks and information, should be ensured by a continuously increasing amount of financial resources earmarked for the Ministry of Defence from the state budget of the Slovak Republic. In this context, it should be appreciated that the Government of the Slovak Republic, in accordance with its promises from NATO summits (e.g. Cardiff 2014, Warsaw 2016, Brussels 2018, and London 2019), adopted a Long-term Defence Development Plan with an emphasis on the development of the Armed Forces and in this context, it is gradually increasing the amount of defence expenditure (see Figure 1).

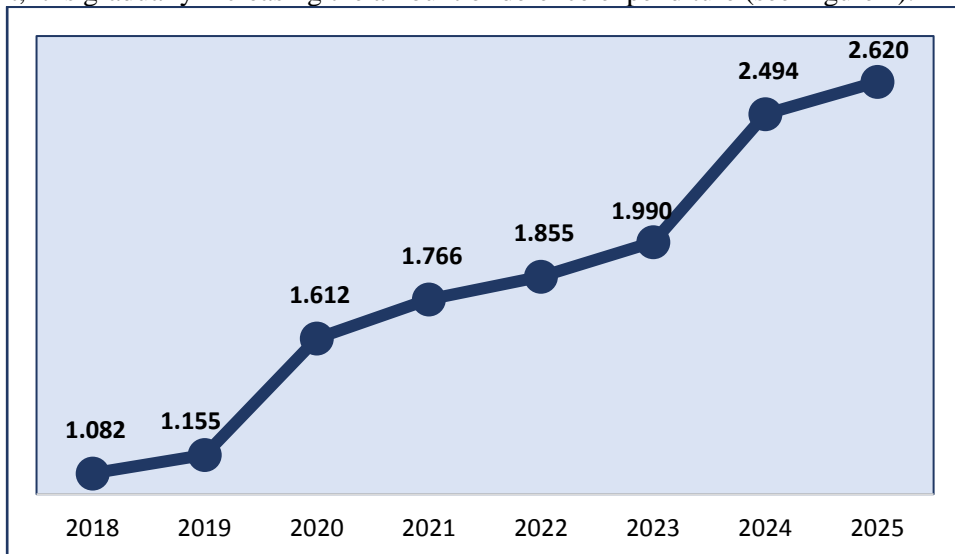


Fig. 1 - Overview of realized and planned defence expenditure (in €millions) [14]

The aim is that the Army, Air and Special Forces units should be able to respond flexibly to security threats, resp. security risks by rapid deployment in their own territory or by rapid deployment to NATO or EU-led multinational, joint, expeditionary operations without geographical, time and manoeuvre constraints [19]. One of the factors to ensure that these requirements are met is the increased financial resources invested in the research, development and modernization of the Armed Forces (see Figure 2). Not only in terms of nominal value, but also in terms of a higher share of total defence spending than the 20% recommended (see Figure 3). In this case too, it should be appreciated that the Government of the Slovak Republic is trying to fulfil its obligations, which it has declared at the above-mentioned Alliance summits by way of its top representatives.

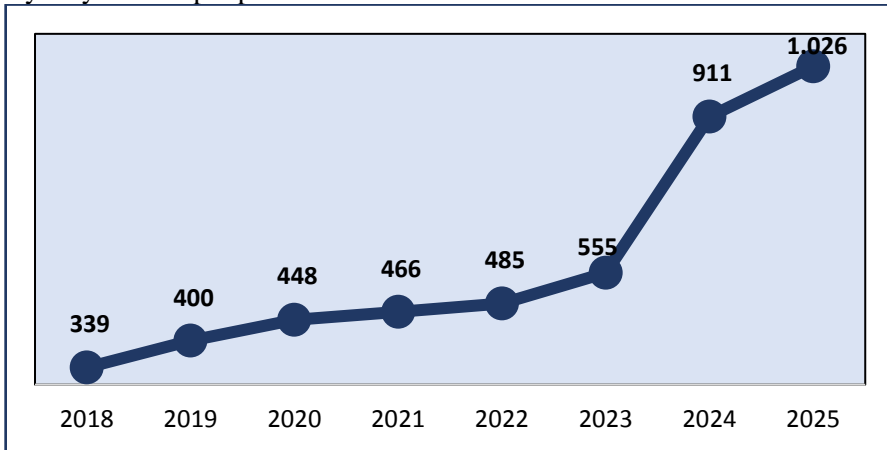


Fig. 2 - Overview of realized and planned expenditure on research, development and modernization of the Slovak Armed Forces (in €millions) [14]

According to the forecast of macroeconomic development of the Slovak Republic, defence expenditures are calculated to reach the level of 1,6% of GDP from 2020 and 2% of GDP from 2024. The mentioned financial framework will ensure implementation of development projects defined by long-term plan, more intensive training, replenishment of supplies and missing material, increasing the number of operational equipment and eliminating deficiencies. The implementation of the long-term plan will be refined annually in the process of mid-term defence planning, where the individual limits will be updated in terms of available resources and also in progress of individual projects.

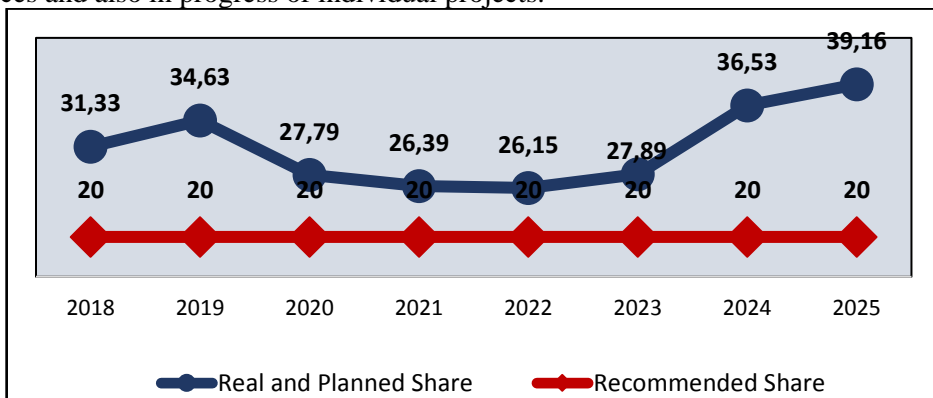


Fig. 3 - Overview of the share of realized and planned expenditure on research, development and modernization of the Slovak Armed Forces in total defence expenditure (in %) [14]

From the point of view of the Air Force it is necessary that the capacities and capabilities of the Air Force of the Armed Forces of the Slovak Republic correspond to the above mentioned tasks and at the same time they are complementary to the military-political ambitions of the Slovak Republic. From active participation in the formation of complex military capabilities to participation in the development and application of common defence technologies in the field of NATO airspace defence, resp. EU [20]. Therefore, based on extensive analyses and consistent (real) evaluation of the possible contribution of the Slovak Republic to the defence of common alliance or union interests, commitments are made within the scope of the Air Force, which will influence their further direction, modernization and development. And in all areas. This objective is also reflected in the planned budget, which will significantly increase the amount of funds for the maintenance, preparation, training, development and modernization of all components and elements of the Air Force, not only in terms of nominal value but also share in the total amount of funds earmarked for the Armed Forces (see Figure 4).

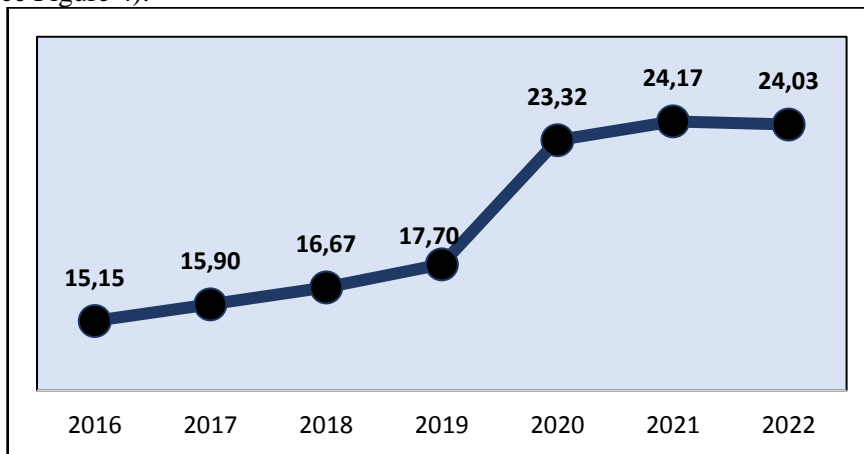


Fig. 4 - Overview of the share of realized and planned expenditures for the maintenance of Air Force in the total expenditure of the Slovak Armed Forces (in %) [14]

Through the purchase of new F-16 Block 70/72 fighter aircraft, C-27J Spartan airliners, UH-60M Black Hawk helicopters, 3D radars and other modern air force equipment along with the modernization of airports and infrastructure used by air force components and elements, Slovakia is making significant efforts to keep pace with new trends in the area of airspace defence and ensure compatibility with allies.

The primary objective is to achieve an even higher level of uninterrupted airspace protection and defence of the Slovak Republic and of the Alliance airspace within NATO's Integrated Airspace and Missile Defence System, to increase the effectiveness of tactical air support for army and special forces operations, and air transport efficiency. The modernization of the technical and technological elements of the command and control system, the protection of voice and data lines and the compatibility of navigation, communication and identification systems and equipment are also not to be neglected.

Other objectives are aimed at enhancing the capabilities of tactical aviation to fulfil operational tasks of airspace protection, air-to-air capabilities to support army, air transport capabilities for the transport of persons, materials and equipment, helicopter aviation that provides air transport of persons, materials and equipment, removal of injured, reconnaissance, search and rescue, as well as tasks in the context of dealing with emergencies and non-military threats, enhancing the capability of radar reconnaissance, as well as capabilities of air defence,

which provides support for defence of the Slovak Republic and outside Slovakia. Overall, efforts supported by increased resources are aimed at significantly increasing the usability of aeronautical and airborne and missile defence techniques in terms of required standards and interoperability. The planned investments in the main air force armament and material aim to increase their usability level to 90 to 95 percent.

Projects aimed at enhancing the qualitative parameters of the main air combat technology should, in line with the long-term plan, reach an aggregate value of about €1,662 million, which represents 29.85% of total investment in major armaments projects (see Figure 5). The basis for building and developing the capacities and capabilities of the air force, capable of guaranteeing the defence of the state and, if necessary, the defence of the Allies, is the modernization of technology, equipment, material and communication and information systems, and overall replacement of obsolete technology [21].

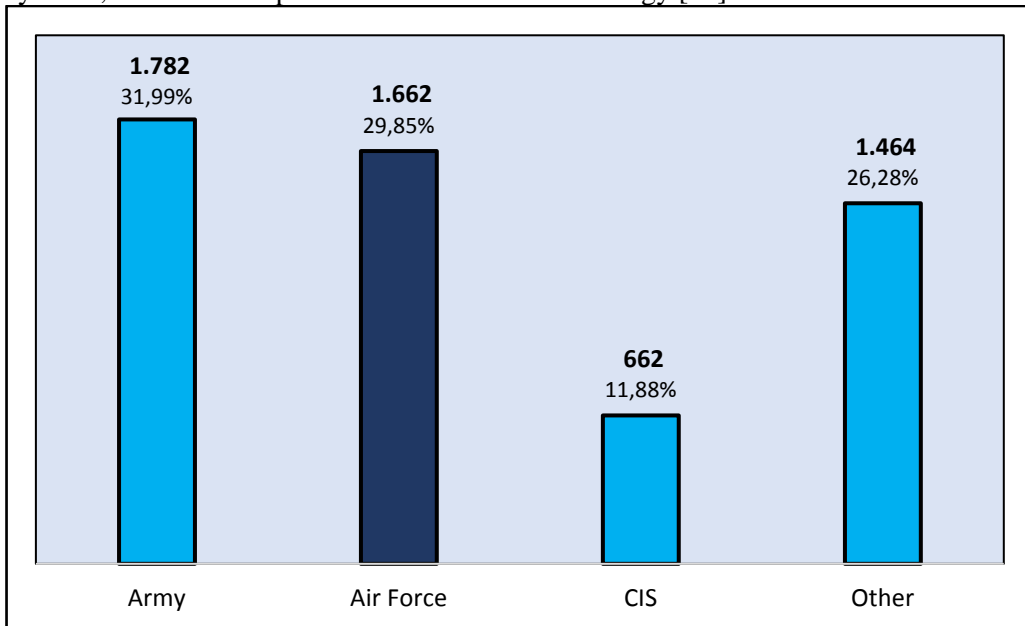


Fig. 5 - Overview of the amount of financial resources and their share in the projects of development and modernization of the Slovak Armed Forces (in €million and %) [14]

As shown in Figure 5, in addition to investments in Air Force development and modernization projects, the Slovak republic will also concentrate financial resources on projects to improve the qualitative parameters of the main army combat equipment, in particular to ensure the critically inadequate capabilities of the mechanized brigade (worth €1,782 million - 31.99%), projects to achieve the required level of interoperability of communication and information systems, including securing the transfer of classified information and protecting and defending its own networks in cyberspace (worth €662 million - 11.88%) and other modernization projects of other equipment, weapons and materials in land, air and special forces, taking into account the commitments made (worth €1,464 million - 26.28%).

The ultimate goal is that the Slovak Armed Forces, through their capacities and capabilities, should be not only able to ensure the defence of the Slovak Republic and provide assistance to other security and rescue services in dealing with and remedying the consequences of emergencies and non-military crisis situations in Slovakia, but also to provide



an assistance to the Party or Parties to the North Atlantic Treaty under Art. 5 as well as to provide assistance and support to a Party or Parties under the EU Treaty and the Treaty on the Functioning of the EU. They must also be able to contribute to peace, stability and security outside the territory of the Slovak Republic as a rule under the leadership of international organizations in accordance with international law.

## 6. CONCLUSIONS

There is no single correct and definitive solution or simple answer to solve the problems of guaranteeing the security and defence of the nation state. The operational maintenance and smart modernization of the Armed Forces is now the price for peace in our countries and the peaceful life of our citizens within the European Union or North Atlantic Alliance. However, although major political, economic and other changes following the fall of bipolarity and the end of the Cold War, which have led to a significant decrease of tensions in international relations, the deterioration of the global and regional security environment and the growth of symmetrical and asymmetric security risks and threats in recent years, require the Nation States to continue to sustain, develop and operationally build up their Armed Forces and create new capacities and capabilities, including these ones, designated for airspace protection and air defence, in order to be able, in coherence with the allies, to operate in a wide range of operations on national and international scene.

This will, of course, require further efforts to build comprehensive, deployable and adaptable forces, what is coupled with the high cost of acquisition and use of new modern technologies, military equipment and armaments, as well as the readiness and sustainability of the Armed Forces. Fulfilment of individual objectives of capability development will guarantee and determine qualitative increase of combat potential and combat capabilities of the Armed Forces. An inseparable part of these intentions are the units, components and elements of the Air Force, which, in addition to the crucial tasks of the air space policing and air defence of the Slovak Republic territory, will continue to perform tasks and missions of the NATO integrated anti-missile and missile defence system, to protect the population and forces against the air and missile threats and attacks during peace, crisis and conflict situation. The Air Force service will thus continue to make a substantial contribution to the deterrent and indivisible security and freedom of action of the Alliance and its Member States.

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