MILITARY NATIONAL SECURITY SERVICE

Issue 2/2022

NATIONAL SECURITY REVIEW

BUDAPEST

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HISTORY OF NATIONAL SECURITY

BARNABÁS ÁDÁM[1]

THE CONCEPT OF THE ARMOURED RECONNAISSANCE HUSSARS IN THE HUNGARIAN DEFENCE FORCES

Abstract

One of the main ambitions of the modernization and transformation of the Hungarian Defence Forces is to set up a heavy mechanised infantry brigade, the technical equipment and capabilities of which must meet the NATO requirements. An important element of the capability list of allied abilities for the Hungarian heavy brigade is the "armoured reconnaissance capability", for the creation of which, a conceptual idea is outlined in this dissertation.

Keywords: hussars, armoured reconnaissance, capability list, NATO, Hungarian Army, offer (for NATO), NATO STANAG, heavy mechanised infantry brigade

Introduction

One of the important topics of national defence policy in Hungary is the modernisation of the Hungarian Armed Forces and the transformation of its command structure, which aims to develop a modern Hungarian armed forces,[2] within the "Zrínyi-2026" Armed Forces Development Programme. One of the targeted ambitions of the transformation is to set up a heavy mechanised infantry brigade with the technical equipment and capabilities to meet the NATO expectations. One of the important elements of the list of allied abilities for the Hungarian heavy mechanised infantry brigade is the creation of an armoured reconnaissance capability, to the development of which, I intend to contribute with this dissertation.

My goal is to outline a concept that can provide a basis for the use of the most internationally known Hungarian service branch in the Hungarian Armed Forces, the currently restored Hungarian hussaria, the development of an armoured reconnaissance capability that currently does not exist in the Hungarian Armed Forces. My hypothesis is to prove, using the example of the Armoured Reconnaissance Corps, which is still known in the NATO / EU Allied forces and is historically called the "Hussar", should constitute the base of our army reconnaissance, with their ability to move quickly in the field, with their mission-oriented organisation and special reconnaissance technical equipment, as well as with their great firepower. If these triple preconditions are at hand, the Hungarian hussars

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[2] BODA, József Maj. Gen. – BOLDIZSÁR, Gábor Colonel – KOVÁCS, László Colonel – OROSZ, Zoltán Lt. Gen. – PADÁNYI, József Brig. Gen. – RESPERGER, István Colonel – SZENES, Zoltán General (ret.): Focus and Cooperation; Research Tasks in Military Science, Army Review, 2016/3, pp. 3-20.

with the NATO-type "armoured reconnaissance capability"[3], modularity and the use of platform-based weapon systems can provide an effective response to the challenges of the present and the future[4], as the new type battalion combat groups[5] set up by the "Eastern Challenger" would pose different threats at tactical and operational level than before, in asymmetric and traditional combats alike.

Foreign examples

We Hungarians can be proud that we have given the world the hussar-type cavalry, called by me in English as the "Hussaria", which has transformed the image of the historical cavalry and, as a result, of today's modern armoured reconnaissance too. The Hungarian hussaria became an independent concept, and in its heyday the armies of thirty-four countries of the world took over this kind of light cavalry organization, their modus operandi, equipment and uniform. Of these, eleven Hussar regiments still operate in the organizational structures of the Allied Forces. In Denmark, one (the Guards Hussar Regiment - with combat reconnaissance and mounted protocol capability)[6], three in France (the 1st Bercsényi/Bercheny parachute Hussar regiment (having air mobile and parachute capability)[7], the 2nd Chamborant Hussar Regiment - long-range reconnaissance capability[8], the 3rd Esterhazy Hussar Regiment – armoured reconnaissance capability[9] - in the Netherlands one (Boreel Hussar Regiment)[10], four in Canada (the 8th Canadian Hussar Regiment[11]; the Sherbrooke Hussar Regiment[12]; the Royal Canadian Hussar Regiment[13]; the 1st Hussar Regiment[14] – all four armoured reconnaissance units); and 2 in the United

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[3] Bi-SC CAPABILITY CODES AND CAPABILITY STATEMENTS, 22 January 2020, 5000 / FPR - 0070 / TT-1758 / Ser: NU0517

[4] BODA et. al. p. 3.

[5] Dr. GRAU, Lester, W. – BARTLES, Charles, K.: The Russian Way of War Force Structure, Tactics, and Modernization of the Russian Ground Forces, Office of Foreign Military Studies, 2016.

[6] https://www.forsvaret.dk/da/organisation/haeren/gardehusarregimentet/opgaver-og-enheder/ (downloaded 12 February 2022)

[7] https://www.defense.gouv.fr/terre/l-armee-de-terre/le-niveau-divisionnaire/3e-division/11e-brigade-parachutiste/regiments/1er-regiment-de-hussards-parachutistes (downloaded 12 February 2022)

[8] https://www.defense.gouv.fr/terre/l-armee-de-terre/le-niveau-divisionnaire/commandement-du-renseignement/2e-regiment-de-hussards (downloaded 10 February 2022)

[9] https://www.defense.gouv.fr/terre/l-armee-de-terre/le-niveau-divisionnaire/1re-division/3e-regiment-de-hussards (downloaded 10 February 2022)

[10] https://www.huzarenvanboreel.nl/ (downloaded 10 February 2022)

[11] www.army-armee.forces.gc.ca/en/5-canadian-division/8-canadian-hussars/index.page (downloaded 30 January 2022)

[12] http://www.army-armee.forces.gc.ca/en/2-canadian-division/the-sherbrooke-hussars/index.page (downloaded 30 January 2022)

[13] http://www.army-armee.forces.gc.ca/en/2-canadian-division/the-royal-canadian-hussars/index.page (downloaded 10 February 2022)

[14] http://www.army-armee.forces.gc.ca/en/4-canadian-division/1-hussars/index.page (downloaded 23 January 2022)

Kingdom: the Queen's Own Hussars[15], the King's Own Hussars[16] - both with heavy-armoured armour reconnaissance) still work today. Based on these, the question may rightly arise: why is there no hussar unit in the organizational structure of the Armed Forces of Hungary, the originating land today that performs similar tasks and has this special capability? In order to answer this question, it must be borne in mind that After World War II, the organization, equipment and training of the Hungarian army were based on the Soviet model in order to achieve the political goals of the Communist Hinlings in Hungary even within the Armed Forces, and the principles of national defence were taken from Soviet military theorists and were influenced by "communist internationalism" alas eliminating in the Hungarian Armed Forces everything that was truly "Hungarian". Changes in security policy, the Cold War and the expected confrontation ahead of the 1955 Warsaw Pact necessitated total technical transformation based on Soviet principles, to which the Hungarian hussars with a long history were completely sacrificed. The "Hungarian hussar" and all the military experience and mentality associated with it, have completely disappeared from the Hungarian Army in the most brutal Communist period of 1949-1956. Subunits of reconnaissance battalions equipped with motorized, light armoured technical equipment set up at division level took over the reconnaissance mission of the hussars, while totally ignoring the offensive spirit and capabilities of the hussars. In the absence of adequate firepower, the reconnaissance bodies, established and trained in the Soviet model, had to carry out their tasks using passive, i.e. non-combatant reconnaissance methods, essentially without disclosing themselves, that is, secretly acting in the battlefield.

Transformation of the Cavalry

For so many centuries, the mobility and striking power of Hussar organizations was given by the horse, which was so paramount and important that it gave the military force that used the horse in combat a typical name of its own: "cavalry". However, the horse became merely an operational tool for the cavalry on the day that the destructive effect of the fire made the equestrian attack impossible and on that day lost its characteristic offensive power in the past, because it was unable to cross the enemy's destructive fire on horseback. The profound transformation of the cavalry, the non-use and replacement of the horse with motorized and lightly armoured combat equipment, was forced by this circumstance, but the cavalry should not be confused with the horse and said that the cavalry's time and legitimacy disappeared. Unfortunately, this view gained ground in the Hungarian military leadership after the 2nd World War, which still has an unfortunate impact on these days as well. Those who are of this opinion forget that the modern reorganization and modernization of the cavalry in the Danish, French, British, American, Italian or Polish forces were carried out, in order to meet the requirements of the commander to direct the operations, that:

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[15]   www.army.mod.uk/who-we-are/corps-regiments-and-units/royal-armoured-corps/queens-royal-hussars/ (downloaded 02 February 2022)

[16]   www.army.mod.uk/who-we-are/corps-regiments-and-units/royal-armoured-corps/kings-royal-hussars/ (downloaded 02 February 2022)

1. Can gain real information about the location and combat value of the enemy;
2. Provide a freedom to act in the shortest possible time to concentrate as much force as possible on the decisive or critical place.

Maintaining agility during the reorganization and motorization of Allied cavalry, including hussar formations, was the key to achieving these goals, because all pieces of information have value only if they arrive in time, and operational security is only effective if it extends far enough, and combining forces at the decisive point and with sufficient speed are most effective when they impact on the enemy with surprising force. The second necessary condition is to achieve adequate firepower, because in both reconnaissance and combat support, or the performance of any operational task at all, it has always been and remains essential to break the resistance or attack of the enemy. Basically, every military organization has real combat value only if it meets the goal to be achieved, and it is that goal itself that determines the means to be provided.

The basic characteristics of the hussar regiments presented above are:
1. High mobility;
2. Vehicles capable of carrying heavy fires and with a platform system;
3. Armour protection, smaller than that of the tank (armoured) formations, but still considered "adequate";
4. They form an organisationally unified whole, however, their subunits can be applied modularly and re-assigned.

During the various force development programs, the top command of the given force created one of the highest combat values, with high manoeuvrability and firepower, and with a complex system of tasks, capable of self-employment by equipping the cavalry formations with modern technical equipment instead of horses. Taking into account the international examples, military equipment that meets the standards of the age and sometimes precedes it, provides an opportunity to set up an armoured reconnaissance hussar unit, equipped with modern military equipment in the same organization as the re-established ceremonial hussar squadron.

Typical features and areas of application of the hussar

From the beginning and during its existence, the Hungarian hussars have been a display of the Eastern light cavalry on the battlefields. The hussar was created by the regularization of the Hungarian irregular cavalry and its integration into the Royal Hungarian Army, the combat procedures and combat value of which, were determined by its irregular roots throughout. Hussars were not elevated to one of the greatest light cavalry form merely by their special and typical Hungarian armament, clothing, or equipment, but by the progressively instinctive military experience, military knowledge, courage, and initiative to which the hussars' individual abilities were adapted during training. Based on the surviving regulations[17], the focus of training in

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[17] Service Orders for the Hungarian Royal Hussar Crew; Budapest, Pallas Részvénytársaság Printing House, 1898

building the virtues of hussars was not on the complex battlefield manoeuvres and their masterful execution, but on the ability to take initiative and combat to implement.

In order to revive the Hungarian hussars and integrate the soldiers into the modern army, their original combat procedures and areas of application must be taken into account:
- Reconnaissance: observation, listening;
- Combat reconnaissance: raiding, landing, making and maintaining combat contact, disrupting the enemy's power supply and base of operations;
- Security tasks: screening (movement and flank' security);
- Pursuing the enemy;
- To cover the retreat of own troops.

The military historical events of the Hungarian Revolution of 1848/49[18] also prove that the above must be considered in a complex system of tasks, and due to the adaptability of the Hungarian hussars, they were able to perform infantry tasks as well when e.g. recapturing the Buda Castle. Suffice it to mention the hussars of General György Klapka, who broke through the squadrons of the Austrian infantry as a battle-cavalry, or we could mention the example of the battle of Limanowa (in Poland), at the beginning of World War I, where Hungarian hussars stopped the Russian attacks in an infantry-type battle.

Possibilities and areas of integration of the hussaria and the Hungarian light cavalry into an army of the modern age

One of the foundations of fighting that has developed over the centuries has been in the mobility of light cavalry and the combination of adequate firepower with the advent of cavalry artillery. Equally important was the complete harmony of the hussar and his horse, his armament (military equipment), as a result of which, he was able to deal with almost all combat situations and terrain, during the combat situations. The success of the hussar was due to the combination of his agility with his initiative and the perfect and maximum use of the cutting and firearms available.

It was an organizational requirement in the Hungarian Armed Forces until 1949, and is still an organizational requirement in NATO / EU forces, which is also reflected in the STANAG standard[19], so that "NATO-compatible" brigades also have armour reconnaissance capabilities and units. This task is provided to the organization of all-armed tactical-military units (brigades) on the European continent and in Canada by separating them from the brigades known as the "hussar" and the "cavalry" in the United States.

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[18] CSIKÁNY, Tamás: The Combat Arts of the War of Independence 1848-1849, Zrínyi Publishing House, 2015. ISBN 9789633276471
[19] Bi-SC CAPABILITY CODES AND CAPABILITY STATEMENTS

Based on the above, in order to benefit from its traditional effectiveness in military operations for the modern age, I consider it necessary to realize the following technical conditions:

1. A mobile vehicle with good manoeuvrability and off-road capability, fast and easy to disguise;

2. State-of-the-art reconnaissance equipment enabling the effective detection of enemy targets;

3. Firepower, which provides an opportunity to fight successfully against an enemy with a larger number of weapons, possibly with armour protection.

It should be noted here that the common feature of the western armoured reconnaissance / cavalry / hussar subunits and units is that they enjoy the triple system of requirements, i.e. high mobility-firepower-armour. While in the case of conventional armoured units they are expected to be in balance, in the case of armoured reconnaissance troops the emphasis is on very high firepower / armour-breaking ability / and at the same time speed to ensure movement, but own armour protection is less important. In practice, this means that high-mobility, very high-powered vehicles may have armoured protection, but not one that would provide at least front-line protection against tower or firearms of the same calibre of enemy combat vehicles. There are many technical examples of this in foreign hussar regiments, e.g. AMX-10 wheeled light tanks equipped with a 105 mm tank cannon from the French 3rd Esterhazy Hussar Regiment[20]. At the same time, the direct, organizational armour reconnaissance support of light sniper brigades can also be solved by appropriate modifications of the light off-road vehicles already regularized in the Hungarian Army, e.g. by placing the integrated missile defence device on them and integrating it with them. The tracked Lynx infantry combat vehicle under fielding is excellent in supporting the armoured reconnaissance tool of the Hungarian heavy brigade offered for NATO, considering that it is also equipped with armour-piercing missile capability and long-range electro-optical reconnaissance equipment.

Considering the conflicts of today, where mainly regular armies are fighting an irregular enemy, the re-concentration of the currently distributed classical combat procedures of the hussar in the forces of the modern age seems indispensable and indispensable. Irregular elements in the tactics and use of hussars could provide irreplaceable assistance in the use of force, and in the training of those elements of the force whose task is not limited to a regular clash with an enemy.

These can be:

– Reconnaissance: according to the original role, the hussar's individual and team reconnaissance activities are based on passive reconnaissance - surveillance (visual) and ear-tracking (auditory) - which can be supplemented by the use of modern technical reconnaissance tools.

– Combat reconnaissance: Passive reconnaissance is supplemented by the use of active reconnaissance methods, assault and landing, in order to determine

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20 https://www.defense.gouv.fr/terre/l-armee-de-terre/le-niveau-divisionnaire/1re-division/3e-regiment-de-hussards (downloaded 10 February 2022)

the real strength and combat value of the detected and identified enemy and to cause confusion. This is made possible primarily by the three basic technical characteristics of the armoured reconnaissance weapon, namely, high manoeuvrability, high firepower, and even acceptable armour protection. Combat-capable hussar patrols, capable of rapid detachment and in constant motion, are able to transmit the collected information to the competent command element in a short time on state-of-the-art communication devices. If the reconnaissance is successful, the power of surprise can be harnessed by immediately starting a fight against the identified enemy. With the right firepower, the hussar patrol - or, after their rapid unification, can start harassing the enemy, "pinching" them, slowing down their intentions, grinding their strength and, last but not least, determining their fighting value and determination. They may continue until they are destroyed or, in the event of significant force majeure, the information obtained shall be immediately forwarded to the appropriate level of element C2, which shall transfer combat contact to the designated full armament subunit, or JTAC (Joint Terminal Attack Controller) or JFO (Joint Fires Observer) continues the devastation with artillery or air combat support within range.

– Proximity and rest insurance: the hussars can also provide direct protection of driving points and objects of special importance; they can be provided mainly by surprise patrols against unexpected diversion attacks.

– Outpost: the shortest possible static deployment of armoured reconnaissance hussar patrol (es) during reconnaissance or security activities during the deployment of the entire armed sub-unit under protection or combat contact. Destroying the enemy with a quick and violent fire strike (landing) from hidden positions.

– Side, pre- or post-protection of runs: securing convoys, sub-units in transit, providing alternative routes designated for the run route and checking against surprises.

– Pursuit of the enemy: depending on the enemy's disintegration, the armoured reconnaissance hussar patrol, section, squadron or department in the organizational structure enforce continuous harassment until the specified terrain section and permanently divert the enemy from its intention.

– Retreat Coverage: Armoured reconnaissance hussars combine with the greatest possible force and firepower, always making the most of surprise power, speed, and available weapons, slowing down the enemy to gain ground, allowing their own troops to escape.

A feature of the armoured reconnaissance weapon is that, in addition to the above traditional reconnaissance and other combat, and combat support procedures, it must have extensive experiences in performing the traditional "offensive" duties of traditionally mechanized sniper and / or tank troops and performing certain duties in armour-piercing artillery. In other words, they must also be trained in "attack / counterattack" on all-weapon combat procedures. For armoured reconnaissance hussars, reconnaissance is not expected to be a strictly separate and independent act of combat, but will be the result of the struggle of the patrols in front, its recurrent violent reconnaissance with the hope of success and the expected hope of success. Such a conception and execution of reconnaissance will, in any case and at all times,

produce a more positive result in determining the combat value, fighting spirit, and strength of the enemy than the (ground) reconnaissance method used today, which is to carry out reconnaissance covertly ("See and not to be seen!").

In addition to the above, the peacetime applications of modern Hungarian armoured reconnaissance hussars may also include:
1. Participation in the performance of the state protocol or other military tasks on horseback in order to show the Hungarian traditional equestrian culture and the abilities of the indigenous horse breeds.
2. Participation in border insurance tasks against mass migration[21] on foot or on horseback.
3. In the preparation of regular and territorial defence forces, resp. joint exercises with Allied forces, such as counter-forces using irregular warfare.
4. Environmental patrols or the search for missing persons on the horseback within the framework of law enforcement support.

Possibilities and areas of integration in the Hungarian Armed Forces:
1. In regular forces (Danish and French models);
2. In the context of territorial defence (reserve) forces (Canadian model);
3. Mixed – existing both with regular and territorial defence (reserve) forces. (pre-1949 Hungarian model).

In details:

1. In the regular army within the framework of the Zrínyi Army Development Program, the establishment of an independent armoured reconnaissance hussar division consisting of command, tribe, logistics squadron, four armoured reconnaissance hussar squadrons and a cavalry (ceremonial) hussar squadron can be supported by a modular system. Without it, the development of an armoured reconnaissance capability within the heavy brigade organization offered to NATO alone will not be possible, as it will require very serious training of all personnel in all branches of the team and various technical reconnaissance areas. The armour reconnaissance capability and knowledge required by NATO could be acquired at the level of individual fighters, vehicle operators, and then at section and century level. In this case, the current organizational structure of the Hungarian Armed Forces will be supplemented, and by concentrating the system of tasks, a new unit specialized in the tasks outlined above will be created.

2. Establishment of an armoured reconnaissance hussar regiment in the organizational structure of the already established regiment only in the area defence forces. In this case, the modular capability may be limited.

3. Creating the armoured reconnaissance capability of the regular and territorial defence forces at the same time, which is part of the regular armoured reconnaissance hussar class with the above organizational structure. Establishment of two armoured reconnaissance hussar squadrons at the regional protection forces on a regional basis, one of which is located in Transdanubia (e.g. Szekesfehervar) and the other on the

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[21] FARKAS, Ádám – HORVÁTH, Tibor – PADÁNYI, József – PETRUSKA, Ferenc: Tasks, legal aspects of the role and position of the Hungarian Armed Forces in relation to mass migration; In: TÁLAS Péter (ed.): Hungary and the 2015 European Migration Crisis, Dialogue Campus publishing House, 2017.

Danube from here (e.g. Nyiregyhaza). These two centuries of territorial protection may have the ability to be fielded with modern equipment. In this case, the integration can take place in the entire vertical of the Hungarian Army.

Organization of the Modern Armoured Reconnaissance Hussar - 2030

Today we live in a duel of small power, big space or big power, big space. It is clear and quite natural that, on the basis of equal opportunities, a small force cannot compete with a large force. At the same time, in the missions in Afghanistan and Iraq, local opponents have taught that one of the keys to winning a small force is to try to present even greater enemy force in the face of constant surprises and uncertainties. In addition to flexible leadership that can adapt to any situation, this requires an executive staff with a high level of morality and adequate military training.

The most effective organizational structure in the traditionally established but also in the modern age is the department, which consists of at least three armoured reconnaissance hussar squadrons of the same structure. The basic requirement is that the centuries be able to perform tasks on their own. It consists of a squadron command and tribe, two sections of the same structure, and a supporting element. Each hussar section is made up of a section trunk and two swarms, each equipped with 2 vehicles. The swarms may be equipped with a tactical motorcycle or a light off-road vehicle for use.

The modern armoured reconnaissance hussar class may consist of two more centuries, of which the first century is traditionally capable of performing a task with horses (decoration or other equestrian military), while the second century is a training squad equipped with modern technology. These centuries are also equipped with modern technology. For the independent and effective performance of training and operational tasks, the Armoured Reconnaissance Hussar Division has appropriate support elements consisting of technical barrier and locksmith, logistics, health and news IT departments.

Features of a modern armoured reconnaissance hussar

The most important thing is to revive the late hussar morality. I am convinced that the purposeful use of the qualities of the Hungarian hussar in today's modern battle can be successful even against an enemy that is better equipped or has superior strength. During the training, historical experience should be used to master the armour reconnaissance combat mode. In a modern battlefield, blind determination is not enough, but it must be all the more objective because we see only glory from the past more clearly and failures more vaguely. The fighting relationship with modern weapons is different, so it can easily happen that out of arrogance or perhaps the superficiality that comes with it, we fail in reality with the greatest effort and sacrifice. That is why armoured reconnaissance hussars need solid, performance-centric soldiers who remain calm even in difficult conditions, able to act prudently, characterized by quiet professionalism, intelligence, strength, effective individual and group activity, who have the highest standards by the end of training. level of

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responsibility and duty, excellent mental and physical fitness, initiative and a strong respect for tradition.

Proposed basic technical equipment of the Armoured Reconnaissance Hussar Division:

- Two-Wheeled Tactical Motorcycle (KHM);
- MB G-280 pc, equipped with off-road turret and missile anti-tank missile fielded in the Hungarian Army;
- GIDRAN MRAP vehicle;
- Lynx infantry fighting vehicle;
- Lynx 120 fire support vehicle[22].

In addition to the above, it should be noted that the high-powered vehicles used in NATO Allied armoured reconnaissance units are generally designed to leave space in the landing space for typically 2 or 4 soldiers. The special equipment of these soldiers should also be considered, and they should be equipped with a high-powered hand-held armour-piercing device in order to increase the armour-piercing capability of the armoured reconnaissance unit. This is especially important in combat in mountainous, heavy, broken and built-up (urban) terrain, as the destruction of enemy armoured targets or firing positions and bunkers can be further intensified by disembarking from a combat vehicle or using a hand-held missile armour-piercing device.

Conclusion

The concept outlined above covers only a very narrow area of the process of developing armour reconnaissance capabilities based on national roots, but – at the same time – meeting also NATO capability requirements. The revival and use of hussars, proven throughout history and gained great military experience, as an armoured reconnaissance force can simultaneously put an elite military unit in the hands of the military leadership that is an excellent user of modern technology and a model of individual sacrifice. The entire organization of the armoured reconnaissance hussar class outlined in the concept, can be set up by the end of 2030, and its personnel can be equipped with state-of-the-art weapons and equipment. Its combat power stems not primarily from its mass, but from the performance of individual soldiers and the capabilities of complex weapon systems. Its members have a unique, versatile and professional training. Of course, force development is not a process planned and implemented in few months, but a long-term and consistent activity. Today, it is possible again, and more than ever, to revive the Hungarian hussaria with a task corresponding to the modern age and to raise it to the military technical standard of the age. Our goal cannot be different: "Preserve old glory and create new" (Taurinius: The Peasant War, 1519)

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[22] www.edrmagazine.eu/mobility-and-firepower-rheinmetall-presents-the-lynx-120-mechanized-fire-support-vehicle (downloaded 02 February 2022)

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LÁSZLÓ HÓDOS PHD[1]

THE LEGAL INSTRUMENTS OF HYBRID WARFARE – THE IMPORTANCE OF LAWFARE

Abstract

Only by creating sufficiently flexible rules, we can prepare legal norms and strategic documents that stand the test of legal vulnerability assessment, in order not to fall victims to the sophisticated tool of hybrid warfare, lawfare.

*Keywords***:** Legal warfare, national security, hybrid warfare, lawfare, state administration, legislation, military intelligence.

1. Introductory thoughts on the research of the lawfare tool system

The regulatory administration of the collective impact mechanism of the forces, tools and methods, used by the national security services can be defined on a wide scale, from the highest to the lowest level of the legal source hierarchy. In order to protect the security of the Hungarian nation, these are used mostly secretly, sometimes openly by the staff of the services. The implementation of the tasks laid down in the legal norms is presumably accompanied by a restriction of fundamental rights; therefore, these measures codified as a state monopoly can be carried out under strict regulations by the organizations authorized to do so. These form the basis of the system of criteria, according to which, the justification, as well as the necessity and proportionality of the changes in the legal norms of special importance closely interacting with each strategy - CXXV of 1995 on the national security services. The basic principles that can be derived from the law, the preparatory organization and the legislator should take the necessary steps to check compliance.

Legislation in these areas is much more complicated than a simple codification task, as the historical antecedents, the latest (national) security challenges and the current possibilities of the rule-making system must all be taken into account. In my opinion, it is necessary to prepare a professional concept, strategy and legal standards to be developed, based on all three systems of criteria, and to apply new solutions. The establishment of the Military National Security Service on 1 January 2012, was such an innovative standard-setting and professional solution that responded to the challenges of the 21st century.

The essential nature of integration also includes the fact that "...as a result of the changes taking place in the global security environment, the role of intelligence gathering and prevention is becoming more important. The complex challenges, characteristic of the operational area, as well as the frequently changing security

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situation, also increase the need for accurate and timely information and assessments."[2]

At the professional-scientific conference "National Security Challenges, National Security Services" held on 24 May 2012 at the National University of Public Service, Lt. Gen. József Kovács said in his presentation entitled "The Military National Security Service after unification" that "with the integration, the government's goal was to create a professionally more effective and more economical service, in terms of its budget, where the flow of information from intelligence and prevention activities can be better ensured, duplications will be eliminated and the preparedness of the staff will increase. Another goal is to make the intelligence and security support of the Hungarian contingents serving in the operational areas even more effective by making the cooperation between the two fields closer."[3]

The government goals – presented in connection with the merger of the military national security services – have been realized, the transformation of the system of the national security services to its current structure, with the creation of the Counter-Terrorism Information and Crime Analysis Center[4], and its renaming and expansion of powers in the summer of 2022 as the National Information Center appears to have been completed. It would be premature to form a scientifically based opinion on the experience of the changes in the management system of the services, at the time of the creation of the work.

In my opinion, professional standards and systems are currently able to operate with limited efficiency, because the past century can only be partially examined from a historical perspective, especially the experiences that have arisen since the system change have not yet been systematized, evaluated and validated at all levels of standard-making. The results that can be obtained from the processing of this professional and traditional historical and legal knowledge in the sense of national security, as well as the actions and data discovered in connection with them and their impact on each other, must be validated in the legislation, in the regulatory instruments of public law organizations and in the internal provisions based on them; otherwise the service's efficiency does not reach the expected standard. With regard to the organizations responsible for the performance of national security tasks, it is worthwhile to search for correlations according to the above, interdisciplinary system of criteria, and carry out a review of the legal standards, primarily by focusing on the relevant situations and events of the period since the regime change, from a legal and professional historical point of view.

2. Questions related to the revision of the lawfare tool system

Among the questions related to the examination of the lawfare tool system, the extent to which the legal institutions used in the scope of activities related to the collection of secret information and its operational support – especially typical for

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2   SZENTGÁLI, Gergely: To serve in silence: Part 1: The situation and transformation of the Hungarian national security sector between 2010 and 2014; Hadtudomány, Bp. 2015/1-2. KOVÁCS, József: The Military National Security Service after unification; Military Science 2013/1-2. p. 87.
4   On 17th July 2016 the amendment to the law establishing TIBEK entered into force

military intelligence and countermeasures – are they able to meet the national security requirements related to the prevention of threats posed by new types of security challenges and interests of the objectives formulated by the Government? Paying particular attention to the fact that, in relation to the system of legal institutions and legal norms typical of the activities of organizations performing national security tasks, it can be established that the rate of reactivity is still too high compared to proactivity.

3. Hypotheses related to the investigation of the lawfare tool system

3.1. At the strategic level of national security activity, the desired public policy objective, the protection of Hungary's national security interests and the enforcement of its goals, can be achieved not by an approach and legislation based primarily on functionality, but by an approach and legislation based primarily on the functionality.

3.2. The national security activity and its system of legal institutions occupy a prominent place in the system of military legal institutions, it cannot be separated from it, but at the same time, due to the system of secret information gathering tasks, it must be handled separately and clearly separated from law enforcement activities.

3.3. The information discovered by the national security services and the experience gained can be used indirectly or directly through the appropriate public law structure and through the lawfare, during the fight against hybrid warfare and the application of individual measures within this scope.

4. Enforcement of the lawfare during conceptualization and legislation

The permanent revision of the system of regulations related to national security activities is decisively ensured by two instruments. These are the subsequent analysis of the impact and results of legal norms, as well as the constant deregulation. In accordance with the level of standard-setting requirements, corresponding to the importance of the task system, these must not only be examined before their creation in terms of justification, necessity and expected effects, but in order to modernize the order of legal standards, a continuous and targeted review of individual legislation and the complete standard environment for the sector is necessary.

In this context, we must note the comparison of the actual effects of the legislation with the expected effects at the time of the creation and amendment of the regulation, as well as the proportionality of the involuntary legal restrictions in the framework of the ex post impact assessment. The substantive deregulation obligation serves the aspects of legal certainty, the transparency of the legal system, and the clarity of norms, in addition to the above, primarily based on legal codification aspects. The impact of the former on sector strategy making is significant, since the availability of the tools and resources necessary to achieve the goal largely determines realistic goal formation, i.e. the organizations professionally preparing the strategy can realistically determine the available capabilities and future resource demand, knowing the goals.

The elementary, but perhaps still the main conclusion of this investigation, which also shows the importance of norm control as an example, is that it is forbidden

to carry out secret information collection in cases other than those carried out for the purpose of carrying out the tasks shown in the law, from the draft, i.e. from the normative text of the strategy.

5. Enforcement of the criteria for warfare with legal instruments during the preparation of strategies

For this reason, during the strategic planning and the related preparatory work, it is justified to pay special attention to the detailed review of the legal regulations applicable to the task, and to the limitations of professional decision-making. It is important to note that laws, government decrees, and ministerial decrees concerning the areas of the study's topic are considered legislation. The provisions of the Act on Legislation[5] and the Norm issued for its implementation, which are at a lower level in the legal source subordination, are required to be applied only to the regulatory instruments of public organizations and legislation.

For this reason, it is not mandatory to ensure the professional content of the draft and its fitting into the legal system, as well as the preliminary impact assessment, for example, when preparing a new National Security Strategy (hereinafter: NSS). The issuer does not have to comply with the obligation to provide reasons, and when commenting on the draft, it cannot be obliged to consult as in the case of drafting a law. It is not necessary to carry out the ex post impact assessment, just as the provisions on the implementation of the content review do not have to be applied. It is an unwritten rule, in the case of specialists dealing with demanding codification, which when preparing and editing drafts that do not qualify as legislation or regulatory instruments of public law organizations, they try to take into account, as far as possible, the provisions of the Law on Legislation and, in particular, the ministerial decree issued for its implementation[6], in order to ensure that the uniformity of legislation prevails.

During the preparation of the strategy as a "result-product", i.e. when presenting it to the issuer, as well as when drafting the decision of the norm-maker, special attention must be paid during the codification and operational support activities to the fact that one of the most dangerous goals of the dissemination of disinformation is to attack the legislative activity on the domestic and international scene.

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[5]   Law No. CXXX of 2010 on legislation
[6]   Decree No. 61/2009. (XII. 14.) of the Ministry of Justice on legislative drafting (codification)

Lawfare[7], which primarily means the use of legislative and law-enforcement tools for operational purposes during hybrid warfare, can be interpreted[8] as including the continuous, in most cases not necessarily well-founded attack on the sources of law created by the highest level of legislation, since the stated goal would discredit the lawmaker's condition, shaking the trust placed in him by the community. The weakening of social belief and presumption in the correctness of the rule of law is suitable for destabilizing, weakening the state or reducing its room for maneuver. The legality of the safety-related concepts and strategic documents presented by the issuer in the legal standard, or the safety-related activities carried out by subordinate organizations in accordance with them, must be highlighted separately.

At the same time, the restrictions contained in the legal norms may, when drafting a concept or strategic document, lead to the need to amend existing legislation, including the legal norms affecting the fields of homeland security, law enforcement, and national security. This confirms the assumption that the professional concepts and proposals made by the organizations responsible for the performance of national, law and order, and national security tasks – even in the form of the work plan of a sectoral strategic document – can also interact with government policy, thus the previously established connection, i.e., the between goals and priorities, as well as the application of tools and methods, a kind of cooperation, or at best, symbiosis, is created.

Symbiosis[9] was presented as an objective by the government, during the drafting of the provisions of the current National Security Strategy, according to which "state bodies in their respective fields continuously evaluate the elements of national and international security and threats, and take the necessary steps for prevention and treatment; furthermore, the organizations responsible for certain subfields of security create and revise their own professional regulations, taking into account the guidelines given in this document". In other words, the legislator determined that when creating the specialist strategies, the portfolios must ensure that they are in line with the provisions of the current National Security Strategy.

The effective National Security Strategy directly stipulates that the state organizations responsible for certain sub-areas of security must create and revise the sectoral regulations for their tasks, in accordance with the guidelines expressed in the Strategy, with particular regard to the national military, law enforcement, national security, counter-terrorism, disaster prevention, to the cyber security and migration fields. All of this must be implemented in such a way that the provisions of the effective National Security Strategy are also burdened by the previously mentioned,

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[7] For more on the use of the term, see: DUNLAP, Charles J. Colonel: Law and Military Interventions: Preserving Humanitarian Values in 21st Conflicts.
http://people.duke.edu/~pfeaver/dunlap.pdf) (downloaded 31 August 2021)

[8] According to Dunlap, legal warfare is a self-inflicted wound that can be prevented by adhering to the principle of the rule of law. This system of criteria is considered a key element of modern warfare, because according to Dunlap's idea expressed in the presented work, the battles of the future will be fought with words rather than swords. Without a stable, especially (public international) legal background, the public does not accept involvement in war, especially its initiation.

[9] No. 1163/2020. (IV. 21.) Government decision – On the National Security Strategy of Hungary – Final provisions

continuous revision obligation, so if a relevant body discovers a circumstance that causes this, it must notify the managing ministry(s) that the necessary norm creation can be initiated. In other words, if the relevant professional organizations and the standard-setter comply with the provisions, they can only create professional regulations and professional strategies by cooperating and keeping each other in motion. This coercion of cooperation can result in one of the strongest protections against the application of counter-interested lawfare measures.

A limiting factor is the fact that the act on the protection of classified data does not contain an annex that would record an exhaustive list. The legal environment makes it the duty of the person carrying out the activity and (preparing) the professional material to consider which data can be disclosed publicly and which information the disclosure of which would cause damage to Hungary. The responsibility of consideration is particularly important in the field of security, especially in the creation of specialist strategies for individual security areas. After all, a mistake, an irresponsible action, or an omission – in addition to damages – can also lead to criminal liability. On the basis of the former, it is advisable to highlight the fact that from a legal point of view a distinction must also be made, according to the degree of freedom of display in formal legal sources, i.e., if justified based on the examination of the data content, the open Government Decision cannot be used as a formal legal source, but the communication can only be recorded in a classified Government Decision.

In the latter case, only those who have the right to know the content of the specialist strategy will know, it is not enough for foreign intelligence services to simply download the document from the Internet. Unless, of course, it is the stated goal of the standard creator that the document be downloaded and treated as a reference point for the scrutinizing reader.

6. National security in the light of security strategies and legal vulnerability assessment

(National) security strategies have a special relationship with the more narrowly understood field of national security, since the basis of security strategies as documents is "the state's perception of security, i.e., its image of security, its components and areas, and especially the factors that threaten security"[10]. Organizations performing national security tasks can play a special role in this, which, looking for their place and role related to strategic planning, can be highlighted in connection with the support of "foresight" and the acquisition and evaluation of the information necessary to make accurate decisions.

Nowadays, more and more data are available, created and obtained in almost countless forms, as a result of which thinking based on data fusion has come to the fore, so thanks to this, the possibility of making more complex and accurate analyzes and even targeted prognoses is available. One manifestation of this is the application (supported by artificial intelligence), capable of monitoring judicial decisions already

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[10] CSIKI, Tamás: The system of strategic documents; Nation and Security, September 2008, p. 76.

operating in the Anglo-Saxon legal field, which in the wrong hands can – also – be able to provide "foresight and even risk assessment support" for underworld circles.

The above-mentioned artificial intelligence, disinformation operations, and the use of fake news can be identified as a (national security) combination (a series of operational measures) against a given country, reinforcing each other's effect, in the event of the appearance and rapid spread of an epidemic disease in Hungary, which carries the risk of mass and serious illness of the population. In the event of a government demand to record effective action against security risks, identified by the current National Security Strategy, the goal may be to create greater consistency than at present in the fields of defense and security. The Defense Administration Office, which was on the planning table at the time of writing this study, will soon provide reassuring responses and measures to these complex problems.

In the context of disinformation operations, is it worth clarifying what scope(s) of disinformation(s) should be collected and analyzed? (Is there a difference between propaganda and the public's own claims?) What are the target(s) of the analysis? (Are there any media, languages or any particularly important areas/countries/regions among the targets?) How often are analyzes carried out? How are analyzes performed? (Is it organized for think-tanks or private companies? Is there any cooperation with platform companies? Do they use artificial intelligence? Do they also use analysis of information other than published information? How are countermeasures based on different analyzes (including counter-reaction) done? What are their best practices? How do they conduct the evaluation cycle? What kind of cooperation do they have with their allies? (With which countries and what kind of cooperation? How often?) What is the division of tasks between the diplomatic corps and intelligence organizations? Is there an organization/personnel that deals with data analysis, or a data fusion center specializing in disinformation? How much is the budget for anti-disinformation measures? How are foreign diplomatic missions used to fight disinformation?

If the body designated for this successfully obtains the answers to the questions raised, it will be able to also for effective defense. It is also true with regard to disinformation operations that it is first worth learning to defend against attacks and shoot back from behind cover.

Examining the legal area of the security sector defined by the previously displayed limitations, we can establish that the so-called legal vulnerability assessment can be carried out using the examination of the enforcement of fundamental rights as a tool. This activity was widely published in the press regarding the legislation passed during the special legal order, and some civil organizations checked all relevant legislations and revealed their shortcomings. The legal vulnerability assessment is the preparation for the targeted attack, the application of the lawfare tool system. From the point of view of strategy and norm-makers, it is reasonable to pay attention to this circumstance as well, since the invisible weapon of hybrid warfare is lawfare. The presence of the (relatively new type) exposure defined by such characteristics on the international scene has become more and more thorough and, in terms of its duration, more and more long-term.

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During the coordinated series of measures, the belligerent[11] takes advantage of the qualities and options provided by modern technologies and device systems, and extends its operations to cyberspace, the world of (social) media, the economy and various forms of social contact. The independent or complementary (combinative) application of individual elements (forms of attack) – even without the deployment of classical forms of attack – can be suitable for causing confusion, disrupting the internal order of some states, and influencing social consciousness. In view of the increased level of new types of threats, Hungary considers the action against hybrid threats and their management to be a priority task. This is also recorded in the effective National Security Strategy, but in relation to lawfare, the legislator and most professional organizations are only familiar with the meaning of the term and the basic characteristics of the potential source of danger.

The new strategic agenda of the European Union for the period 2019-2024 shows the concept of measures to protect against one of the most dangerous challenges, the importance of protecting society against hybrid threats, malicious IT activities and disinformation, and emphasizes that the management of such threats requires a comprehensive investigation, with more cooperation, coordination, resources and the deployment of a significant technological equipment park. This task is rather complicated, because the activity is mainly carried out by isolating and discrediting the nation-states, i.e. – whether in the case of the EU or NATO – the aim is to reduce the trust of the member states in each other[12]. To counterbalance this, it becomes imperative to strengthen the ability to withstand enemy intelligence activities.

Close cooperation between member states and other relevant international organizations, especially with NATO, would support the coordination of counterintelligence against hostile activities in the EU[13]. It is also associated with the fact that hybrid warfare, as non-military, i.e. responses to non-traditional strategic challenges (actual measures) and the subsequent probable military activity, has significant cost implications[14].

7. Lawfare as a double-edged sword

Hybrid threats attack is very harmful for the functioning of the state in the target country. Examining the circumstances of increasingly deep and wide-ranging operations seems to be expedient, if these are carried out taking into account the

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[11] It is not necessarily necessary to look for a specific state and its intelligence service behind such measures, which are part of the tools of hybrid warfare, because a terrorist organization, a non-state organization or influential players in economic life are also able to implement and apply them.

[12] Joint Communication of the European Parliament and the Council on a Common Framework for Action against Hybrid Threats (Source: https://eur-lex.europa.eu/legal-content/HU/TXT/?uri=CELEX%3A52016JC0018) (downloaded 31 August 2021)

[13] Strengthening resilience and capabilities to deal with hybrid threats, European Commission, 2018. Source: https://eur-lex.europa.eu/legal-content/HU/TXT/PDF/?uri=CELEX:52018JC0016&from=GA (downloaded 31 August 2021)

[14] HÓDOS, László: Thoughts on some key aspects of national security identified in Hungary's National Security Strategy; Professional Review, Budapest 2020/3, pp. 21-31.

opportunities that exist and can be created both in international cooperation and in legislation, assuming that the challenges are dynamic and constantly changing, so a static, reactive legislative approach is not quite effective. This is even truer when creating strategic-level norms and the strategies displayed in the norms. An excellent example of a proactive rule-making approach is the amendment to the Act on National Security Services that entered into force on 1 January 2020, according to which, the Military National Security Service "reveals attempts to attack and influence Hungary, and enforces Hungary's interests abroad in accordance with its task system"[15]. Legislator's reactions, which in the most optimal case are stimulated by professional and scientific activity, increasingly provide effective answers to the questions that have arisen, due to the recognition of the security risks posed by hybrid warfare[16] and the importance of lawfare[17].

When examining the relationship between lawfare and disinformation operations and influence attempts, it can be stated that "warfare is material-centric", since without adequate (very serious) financial expenditures, the struggle, including both attack and defense, has no chance. As an obligee of international role(s), in the case of Hungary, it should not be forgotten that "in the case of states with "limited resources", the effective operation of national security structures, the collection of information based on coordination, management, technical and human resources is of particular importance, the analyst-evaluator, or even the coordinated work of the various expert fields"[18] should actually add up and be used in this way, either to detect and eliminate threats, or to enforce Hungary's national security interests and goals. For this reason, it would be important for states with limited opportunities to rely on the alliance system and on the quality of their own work, facilitating the fulfillment of alliance and member state obligations and the provision of their own protection.

As the authors of the study "Environmental Future Research: Hungary 2050" put it, "there is a need for systematic dealing with the future to become a regular activity

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[15] In Law No. CXXV of 1995 on national security services. in § 6 (1).

[16] FARKAS, Ádám: Complex security, hybrid conflicts, complex responses; Honvédségi Szemle, 2020/4. pp. 11-23.; FARKAS, Ádám – RESPERGER, István: Dealing with the challenges of so-called "hybrid warfare" are today's limits of international law, In: FARKAS, Ádám – Végh, Károly (Eds.): New type of warfare in the second decade of the 21st century and beyond – institutional and legal challenges; Zrínyi Publishing House, Budapest, 2020, pp. 132-149.; HÓDOS, László: The rising phase of hybrid conflicts, or the national security aspects of threat detection, prevention and management; Honvédségi Szemle, 2020/4. pp. 39-64.

[17] Regarding the topic, see: BACHMANN, Sascha Dov – MOSQUERA, Andres B Munoz: Lawfare and hybrid warfare – how Russia is using the law as a weapon; Amicus Curiae – Journal of the Society for Advanced Legal Studies, 2015 Summer, pp. 25-28; ANSAH, Tawia: Lawfare: A Rhetorical Analysis; Case Western Reserve Journal of International Law, 2010/1-2. pp. 87-119; NEWTON, Michael A.: Illustrating Illegitimate Lawfare; Case Western Reserve Journal of International Law, 2010/1. pp. 255-277., B. MUNOZ: Hybrid Warfare as Lawfare: Towards a Comprehensive Legal Approach; In: CUCUMANO, Eugenio – CORBE, Marian (Eds.): A Civil-Military Response to Hybrid Threats; Palgrave MacMillen, Cham, 2018. pp. 61-76.

[18] DOBÁK, Imre: National security services – Insight into the national security systems of the Visegrád countries (V4), Hadtudomány, Budapest, 2015/4. p. 114.

in the ranks of the domestic professional community as well as international practice, promoting cooperation between scientific fields"[19].

This study also aims to support this, the dynamic thinking of legislators, since taking into account the perspective system of future research, in order to achieve the quality of legislation and strategy making that can be attributed to the proactive adjective, we must constantly monitor the horizons and create sufficiently elastic rules, legal norms that can withstand the test of legal vulnerability testing, we need to prepare strategic documents, in order not to become victims of the sophisticated tool of hybrid warfare, lawfare.

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[19] COLD N. – MIHÓK B. – GÁSPÁR J. – SCHMIDT P. – MÁRTON A. – BÁLDI A. (2018): Environmental future research: Hungary 2050. Magyar Tudomány, Vol. 179, No. 5, pp. 726–727.

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GEOPOLITICS

DR. ALBERT TORMA[1]

THE COMBINED EFFECT OF TESTOSTERONE AND CORTISOL ON AGGRESSION - THE DUAL-HORMONE HYPOTHESIS

Abstract

Hormones, in particular testosterone and cortisol, play a crucial role in the development and the regulation of aggressive behaviour; furthermore, they interact with each other. Testosterone and cortisol also play a key role in the hormonal response to stress and influence the functioning of the nervous system at the genetic level, which may have a lasting effect on the organism's behaviour in the future. The so-called dual-hormone hypothesis suggests that the coexistence of high testosterone and low cholesterol is the hormonal basis for the manifestation of aggression, although the link has been shown to be well established in studies of men, and the results for women are incomplete or contradictory.

*Keywords***:** aggression, testosterone, cortisol, dual-hormone hypothesis

Determination of aggression

Defining aggression is a very difficult task, many authors try to make up for the problem by describing the phenomena. In a general approach, we talk about aggression when someone wants to hurt or harm another person. A more scientific definition is that aggression is a collective term, which describes certain motivations, thoughts, emotions, and behaviors that target specific people and things, and most often have a detrimental effect. According to other researchers (Laplanche and Pontalis, 1973), "aggression is a set of tendencies or tendency that appear in a real and imagined form of behavior aimed at harming, destroying, coercing, humiliating, and so on. There is no single behavior, either negative (e.g., failing to help), positive (expressing an intention to help and supporting the other person), or symbolic (e.g., irony), or any other effective form of behavior that cannot be aggressive. Psychoanalysis has attached increasing importance to aggression, demonstrated its impact on an individual's early development, and emphasized its association and separation with sexuality." Based on all these considerations, the conceptual definition of aggression says, according to Mr. István Hárdi: they may be conscious or unconscious, manifest themselves directly or indirectly (e.g., by sending an annoying gift), even in a transformed form (e.g., anxiety from repressed aggression, physical symptoms)"[2].

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[2]   HÁRDI, István: The word of aggression; Medicina Könyvkiadó Rt., Budapest, 2000, pp. 17-77.

The definition of aggression theories is available at different levels. Based on the ethological-evolutionary definition, the element of adaptive aggression, which is essential for obtaining limited resources, should be highlighted (Gooldenough et al., 2001). According to the concept of psychiatric aggression, "aggression is a powerful, purposeful action that can be seen as the motor equivalent of a feeling of anger and resentment in verbal or physical form" (Kaplan-Sadock, 1998). This definition links aggressive behaviors to internal, emotional, and spiritual states. Aggressive types of behavior were described by Mr. Vilmos Csányi, an internationally renowned ethologist, biologist and biochemist. He summarized this in his textbook. On the basis of this, we can make distinction between river protection, frustration, border scanning, and self-aggression, as well as aggression enforcing normative and moral principles.

Aggression theories explain aggressive behavior – from a variety of theoretical approaches – with different factors. The foundations of biological theories are genetic, neurochemical and endocrinological processes, which also involve changes in the structural and, possibly, anatomical structure of the nervous system. In a sociological approach, explanations for behavior are to be found in social and cultural influences. Psychoanalytic theories rely on the assumption of innate instincts, according to which, aggression is an inevitable act but can be deduced and sublimated. According to the frustration hypothesis, aggression is based on internal or external obstacles in the way of aspirations and goals, or internal motivation caused by the failure of those goals. The theory of frustration-aggression was developed by Dollard et al. (1939), who argued that aggressive behavior is preceded by a state of frustration and that a state of frustration leads to aggression. It can be frustrating to interrupt an ongoing, purposeful action and deny a desire or wish. According to the behavioral-psychological conception, we learn aggressive behavior on the basis of educational effects, observations and reinforcements; therefore, the role of models in this approach is especially emphasized. According to cognitive theory, the realization of an individual's goal leads to frustration, which can trigger aggressive behavior, as a result of processing information about situations[3]. Based on motivational theories, spontaneous aggressive behavior that is born with us is inevitable and must be sublimated and diverted (e.g., by pursuing martial arts).

Alternatively, aggression may be physical or verbal, direct or indirect, or active or passive. Physical aggression involves physical contact between the parties, verbal aggression occurs through linguistic expressions, direct aggression is directed at the aggrieved party, and indirect aggression is the attack of persons or objects important to the injured party. With regard to the latter, mention should be made of the circumstance where revenge is the background of the aggression and the target of the aggressive act is a family member, property, car, etc. that causes the alleged or actual harm. Aggression, which occurs actively, is passive when an obstacle rolls in front of the other, in order to cause harm to the victim. Considered on ethological grounds, aggression can be offensive (predatory, mating-related) or defensive (self-defensive, defensive). Regarding the direction of aggression, the aggressor's action against himself (auto aggression) and against another person (hetero aggression) may manifest. Other conceptual approaches can be grouped around aggression theories. Persistently hostile, negativistic, confrontational behavior towards a person is defined

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[3]   FROMM, Erich: The Anatomy of Human Destructiveness; Háttér Kiadó, 2001, pp. 109-110.

as opposition, and disruption can be defined as disruptive behavior. Destruction manifests itself as a gross, humiliating, unfair treatment of behavior[4].

The role of hormones in the manifestations of aggression

Defining the concept of hormones, even though it is a term used in common parlance, is not an easy process. It is essentially a common name for the molecules that are formed in the body and affect the function of other cells, groups of cells, or tissues and organs. In general, their production takes place in specially differentiated glands, the endocrine glands. The concept of the hormone was first developed and used by two English life scientists, William Maddock Baylis and Ernest Henry Starling, in 1904, after the discovery of a hormone called secretin and its role in intestinal peristalsis. The hormone is a Greek word and means "spur". Hormones reach the target cells or organs within the body through the bloodstream. Hormonal effects are mediated through the organization of protein molecules on the cell surface, in other words, through the receptor. The receptor is always a protein, but hormones are not always proteins; based on their molecular specificity, hormones can be classified into modified amino acids (e.g., adrenaline), polypeptides (e.g., thyrotropic releasing hormone, corticotropin), and steroids (e.g., cortisol, testosterone)[5].

The secretions of the endocrine glands, hormones, have characteristics that play an important role in the manifestation of behavior and aggression. The endocrine glands produce the hormones continuously, in sufficient quantities, which the bloodstream delivers to the target cell or organ at the same time, allowing the body to prepare for an adequate response, and the need for such a response arises when stress is experienced. Stress, as defined by the father of stress physiology, János Selye (1950), is a non-specific response to a stimulus on the body, which is actually a response to a challenge. Non-specificity refers to the body's general ability to adapt, which is activated by the stimulus, regardless of its nature. Stress factors that cause a pleasant, pleasurable state, positive stress, and that have an unpleasant, destructive effect, can be defined as negative stress[6]. Alternatively, the stressors can be divided into "good" and "bad" stress, but there is a "subtype" of the latter that can be labeled as "toxic", due to its early onset, long-lasting, and developmental effects, and is responsible for subsequent adverse consequences. Stressor, which induces the body's response, causes a set of bodily reactions, collectively referred to as General Adaptation Syndrome (GAS) (Selye, 1964). The syndrome consists of three distinct stages. The first is the alarm reaction, which is essentially the equivalent of Cannon's emergency response (1915), giving two options for dealing with the situation: either preparing for a fight or flight. Within this framework, physiological processes are realized, with an acceleration of the heart rate, an increased blood supply to the muscles, an acceleration of breathing, a contraction – during which the increased red blood cell flow is intended to improve oxygen supply – a dilation of the pupils

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[4] Ibid.

[5] LUDÁNYI, Andrea (ed.): Modern protein research methodology; Medicina Könyvkiadó Zrt., Budapest, 2011, pp. 115-116, 142-143, 151-152, 301-304.

[6] HALLER, József – FARKAS, Johanna – FOGARASI, Mihály – KOVÁTS, Daniella – MALÉT-SZABÓ, Erika: Biological factors of crime; In.: HALLER, József (ed.): The criminal's mind; Budapest, Ludovika University Publishing House, 2020, pp. 5-6.

(photosensitivity) and an immediate cessation of starvation[7]. The essential role of hormones in this initial phase is already evident: the adrenergic / noradrenergic system – by increasing the blood supply to the peripheral muscles, raising blood pressure and heart rate, also reducing pain – sharpens memory and contributes to this complex support effect.

The second stage is the resistance period, which involves raising the resistance to a high level with the apparent disappearance of the signals of the alarm reaction.

The third step is the phase of exhaustion, as this increased condition cannot be maintained for a long time, the body depletes its reserves and the so-called adaptation energy is gradually, unstoppably depleted. With regard to the study of aggression, the group of sex hormones and stress hormones should be examined primarily, given that these two are of paramount importance from a criminological point of view.

The role of testosterone in aggression

Sex hormones play an essential role in the development of an individual, through the development of sexual characteristics. The crime risks of female sex hormones, estrogen and progesterone, are negligible and may even improve the treatment of some sexually motivated crimes, but it should be noted that there may be an association between certain premenstrual and menopausal hormonal disorders and crime. However, the association between male sex hormone, testosterone and violent and sexual offenses stops for both sexes, and a direct causal relationship between increased testosterone production and violent crime is supported by several studies.

The first phase of the nervous system's effects on testosterone falls around the time of birth, when testosterone levels in the fetus rise by just a few hours to make the nervous system sensitive to the effects of this hormone, a kind of sensitization process for later physiological function. The absence of this condition hinders the development of psychological and physical effects at a later age, and the absence of this process cannot be corrected later, given that the nearest increase in testosterone levels occurs in adolescence, but hormone levels remain essentially almost constant. Showing a declining trend with advancing age, although this process can be slowed by certain lifestyle behaviors (regular sport). Testosterone acts through receptors, but the receptors for this hormone, unlike the receptors for neurotransmitters on the cell surface, are located inside the cell, the cytoplasm. The binding of the hormone to the receptor results in its co-transport into the nucleus, where it changes its function by acting on and acting on the genes. An important moment is that testosterone affects the development and function of the brain by influencing the development of slightly different structures in the male and female brains, the signaling substances of the nervous system, the distribution and amount of receptors receiving them, thus having a significant effect on the nervous system. All this is done on a genetic basis.

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[7] IGYÁRTÓ, Horváth Zsuzsánna: Behavioural characterization of context-dependent aggressive behaviour in dogs; Doctoral thesis, Eötvös Lóránd Tudományegyetem Etológia Tanszék, Budapest, 2009, pp. 23-24.

The influencing effects of testosterone on the nervous system are also closely related to gender roles, insofar as this hormone is responsible for the manifestation of sexual characteristics, sexual behavior (species maintenance, fighting for females) and aggression; in general, an increase in hormone levels results in an increase in the violent nature[8].

The role of cortisol in aggression

The two groups of stress hormones are catecholamines (adrenaline and noradrenaline) and steroids (cortisol et al.). Representatives of both classes are produced by the adrenal gland, catecholamines by the adrenal cortex, and cortisol by the adrenal gland. Under stress, the adrenaline / noradrenaline system prepares the breathing and bloodstream to tolerate it, and cortisol contributes to the overall body's response to stress through the efficient use of internal energy sources, through three mechanisms. On the one hand, it mobilizes the resources needed for physical activity, on the other hand, it improves and enhances memory, the learning process and the ability to process emotionally, and on the third hand, it acts as a balancing, homeostatic function by supporting other systems involved in the stress process. Overall, stress hormones are associated with increased alertness, increased ability to concentrate, sharpening of the senses, and recording memory traces.

At a critical moment, catecholamine levels prompt to multiply in the normal range, resulting in adequate respiratory and circulatory reactions. Cortisol rises after minutes and after tens of minutes in terms of peak effects, its effects appear on a wide scale of time, showing a decrease to the original level minutes or hours after the cessation of the stress, but may remain high for several years[9].

Like testosterone, cortisol exerts its effects by affecting genes, according to the mechanism described for testosterone, i.e., by binding to receptors in the cytoplasm of the cell inside the cell and diffusing into the nucleus by settling on the genes. However, cortisol, the so-called due to its epigenetic effect, it is able to cause a lasting change in the nervous system, transforming its molecular structure or anatomical structure. A further characteristic of cortisol is that not only its overproduction but also its low levels are disturbing, typically high levels increase the chances of depression as well as anxiety, and low cortisol production increases the risk of antisocial behavior[10].

Common characteristics of testosterone and cortisol in terms of aggression
Both testosterone and cortisol act by affecting the regulatory region of a gene during gene transfer. The regulatory region of a gene is the area through which the coding (reading) of the gene can be stimulated or inhibited. As a result of the elevated hormone effect, this regulatory region is affected, gene expression is altered, i.e. the expression of the gene (synthesis of the encoded proteins) is altered, thus the behavioral effect occurs, i.e. a situation occurs, as if we were born with other genes.

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[8]   HALLER et. al. (2020) op. cit. pp. 2-3.
[9]   IGYÁRTÓ (2009) op. cit. p. 25.
[10]   HALLER et. al. (2020) op. cit. pp. 3-4.

In the present case, however, normalizing hormone levels can even reverse the process, unlike the procedure associated with our native genes. Cortisol is required for serotonin, a neurotransmitter that is important for aggression, to function properly, and for serotonin receptors to be available at certain points in the nervous system. All chemical, physical, and psychological effects – that inhibit the action of serotonin in the brain – have an aggressive effect. In this way, it is understood that if the function of these genes is altered, due to the action of cortisol, the function of the nerve pathways that regulate aggression will also be disrupted and an antisocial attitude will develop.

Testosterone and cortisol exert their effects in the body through an epigenetic effect, the significance of which is that the sustained response elicited is not, or only with difficulty, eliminated. Epigenetics is the postnatal modification of the genetic code we are born with according to two different chemical processes. In one, the DNA is turned on a protein in the nucleus called histones, and the gene binds to the acetone radical (-COCH3) along with the histone. This process results in a quasi-defective gene, and the protein encoded in this way can no longer be synthesized by the body. In the other process, a methyl radical (-CH3) adheres to the DNA molecule, which does not inhibit gene expression, but slows it down and the consequence may persist after hormone production has returned to normal[11].

The dual-hormone hypothesis

Various nervous system structures are involved in the regulatory activity of hormones, and their roles in influencing aggression have been demonstrated in animal experiments. Electrical stimulation of a brain structure called the hypothalamus elicits offensive behavior in rats, and the same reaction is seen in golden hamsters, and if the hypothalamus is activated, there is an offensive behavior toward the potential intruder. Also, in the case of primates, the radio-controlled electrode built into the thalamus nucleus results in aggressive behavior.

In the adaptation phase to stress described above, the central task is to maintain the balance of the body - homeostasis. The adrenal axis (HPA: hypothalamic-pituitary-adrenal axis) must be fully compliant. The key moment is that the two systems do not operate independently of each other, but have an influence and influence on each other, which fundamentally determines the effect of the two hormones on aggression. As soon as the stressor appears, a substance called corticotropin releasing hormone (CRH) is released in the nuclei of the hypothalamus, which stimulates the pituitary gland to secrete more adrenocorticotropic hormone (ACTH) and vasopressin. As a result of this process, a secretion called glucocorticoid hormones, called cortisol, is released by the adrenal cortex. The HPA shaft is self-regulating and also affects the HPG system. Within the self-regulatory mechanism, elevated cortisol levels inhibit the secretion of CRH and ACTH, which reduces cortisol production, thus ensuring that the body is depleted of its reserves prematurely. However, in addition to this process, an increase in cortisol at all three levels of the HPG axis suppresses testosterone production, i.e. increased cortisol levels may be

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[11]   Ibid. pp. 11-14.

associated with low testosterone levels, but the process also affects testosterone levels. Thus, it ultimately has a negative effect on cortisol excretion[12].

This is important because the relationship between testosterone levels and cortisol levels has an effect on the onset and extent of aggression, as the double-hormone hypothesis suggests. High testosterone levels result in dominance and aggression in men, but only when their cortisol levels are low[13] [14]. Contrary to popular belief, high levels of testosterone alone are not enough to induce aggressive, violent behavior, but if high levels of testosterone are coupled with low levels of cortisol, the manifestation of aggression is inevitable[15].

Although in a slightly different approach, a study that examined the relationships between empathy and testosterone levels and cortisol levels, involving 501 students and representing both sexes, came to a similar conclusion. Empathy can also be interpreted as a kind of counterpoint to aggressive manifestations, defined as empathy: it shows how well we are able to put ourselves in another person's state of mind, thereby sparking compassion, quenching aggressive emotion and motivation. The study found a result of decreased empathy for high testosterone levels and low cortisol levels, showing that the above combination of the two hormones leads the body toward aggressive attitudes[16].

There is significant, albeit little, support for the double-hormone hypothesis in a meta-analytical study, investigating the relationship between baseline testosterone and cortisol levels measured in a non-manipulated, non-experimental, possibly provocative situation in terms of the ability of cortisol to affect the relationship between testosterone and, among other things, dominance and aggression. Confirmation of the dual-hormone hypothesis showed supportive results for men, and the correlation was almost negligible for women, pointing to the need for such studies in women[17].

Despite the studies described above, a study conducted exclusively in women, showed the unexpected result that the manifestations of dominance and aggression were associated with high testosterone levels and, contrary to expectations, high cortisol levels. In a study of 53 women, basal cortisol and testosterone levels detailed above were collected from a saliva sample, detected by the chemiluminescence method detailed below, and examined for reactive, i.e., "provoked" aggressive

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[12] IGYÁRTÓ (2009) op. cit. pp. 24-30.
[13] MEHTA, Pranjal H. - JOSEPHS, Robert A.: Testosterone change after losing predicts the decision to compete again; Hormones and Behavior, 2006, Issue No. 50, pp. 684-692.
[14] POPMA, Arne et al.: Cortisol moderates the relationship between testosterone and aggression in delinquent male adolescents; Biol. Psychiatry, 2007/3, pp. 405-411.
[15] TERBURG, David et al.: The testosterone-cortisol ratio: A hormonal marker for proneness to social aggression; International Journal of Lawand Psychiatry, 2009, Issue No. 32, pp. 216-223.
[16] ZILIOLI, Samuele et al.: Testosterone, Cortisol and Empathy: Evidence for the Dual-Hormone Hypothesis; Adaptive Human Behavior and Physiology, 2015, Issue No. 1, pp. 421-433.
[17] DEKKERS, Tycho J. et al.: A meta-analytical evaluation of the dual-hormone hypothesis: Does cortisol moderate the relationship between testosterone and status, dominance, risk taking, aggression and psychopathy?; Neuroscience and Biobehavioral Reviews, Issue No. 96, 2019, pp. 250-271.

manifestations. In the study, aggressive manifestations provoked by critical remarks on verbal expression presented in a sham and moderated web conference were observed with the above result[18].

Detection of cortisol and testosterone

The measurement of cortisol and testosterone is called immunoassay, more specifically by electrochemiluminescence. Immunoassays require a labeled molecule to detect the amount of antigen or antibody present in a sample. The labeling molecule is involved in the immune response, resulting in a signal change in the sample that is measurable. A naturally occurring or artificial chemiluminescent molecule should be used in the chemiluminescent immunoassay. The chemiluminescent molecule does not require light but physical (e.g. electrical) excitation energy to generate light emission. Natural substrates (e.g., luciferin adenosine triphosphate) are used to induce the light generated by the chemiluminescent enzyme reaction[19].

Conclusion

Among many other factors, hormone homeostasis also plays a key role in the manifestation of aggressive behaviors. Hormones that affect the entire body form interconnected systems that affect each other from this end, similar to the structure of the web: intervention at any point in the web, affects the entire web.

Testosterone and cortisol, which are of key importance for aggression, were examined together, examining the question targeted in several studies to find an answer: whether the dual-hormone hypothesis, i.e., high testosterone and low cortisol levels result in a strong, unavoidable manifestation of aggression.

The results show that there is a strong correlation between the effects of the two hormones and the onset of aggression in men, but the evidence for women is inconclusive and incomplete. Research on the support or refutation of the double-hormone hypothesis in women with violent offenses is particularly incomplete.

Testosterone and cortisol exert their effects through epigenetic interventions, affecting the functioning of the entire nervous system, sometimes even permanently. For all these reasons, it is particularly worthwhile to examine how the differences in testosterone and cortisol-levels may be associated with a possible infancy period in adolescence or adolescence, given that these two periods are the most vulnerable to hormonal interference. In this regard, it should be emphasized that the problem of treating aggression is already evident in preschool. According to statistics, the peak of violent and non-violent crime is between the ages of sixteen and eighteen. The physiological basis of the phenomenon is that during the second decade of life, the

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[18]   DENSON, Thomas F. et al.: Endogenous testosterone and cortisol jointly influence reactive aggression in women; Psychoneuroendocrinology, 2013, Issue No. 38 (3), pp. 416-421.
[19]   LUDÁNYI (2011) op. cit. pp. 142-159.

brain-areas responsible for adaptation, risk and reward analysis (primarily prefrontal cortical regions) undergo rapid change[20].

In summary, further studies are needed on the dual-hormone hypothesis, especially in women, including also analysis and evaluation of the association with possible traumatic history.

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TIBOR SZILVÁGYI PHD

SUSTAINABLE MILITARY DEFENCE SYSTEM – VISION OR REALITY?

Abstract

The military defence system is an important part of the state administration. Its enormous expenses require prudent and smart management of the available human and material resources. The armed forces, defence industry and military technology as main parts of the military defence system should take into account the current sustainability requirements and endeavours recommended or stated by international institutions, organisations and individual states, in multilateral agreements and conventions. A modern defence industry company should follow the new operational concepts of the armed forces and conduct its ESG (economic, social, governance) policy according to the expectations of sustainable military technology.

Keywords: military defence system, armed forces, defence industry, military technology, sustainability, environmental protection, ESG policy

1. Introduction

We live in an extraordinary time when security challenges replace each other especially rapidly, without solving the earlier one. The COVID-19 pandemic has not disappeared yet when at the end of February 2022, Europe had to face a new enormous security challenge, the Russian military invasion against Ukraine. This aggression has politically divided the world and has amended the bilateral, international and global economic relations at least in the short-term. Additionally, even sustainability[1] has gained new importance and sense. Unilateral dependency on foreign energy resources and on others' military technology is not sustainable, therefore individual states should think about diversification of their procurements concerning energy sources and weapon systems as well. The apparent shortage of oil and gas access may lead to increasing exploitation of renewable energy sources, since fossil energy markets suffer turbulences, which can result in a shift towards renewable resources.

Nowadays sustainability is a popular expression that is mainly used in economic terms and assumes a mutually beneficial relationship between economic development and environmental protection. Companies are increasingly scrutinised by potential investors regarding their economic, social and governance (ESG[2]) indicators, which

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[1] Sustainability; In 1987, the United Nations Brundtland Commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." https://www.un.org/en/academic-impact/sustainability (downloaded 25 May 2022)

[2] Demystifying ESG: Its History & Current Status; ESG issues were first mentioned in the 2006 United Nation's Principles for Responsible Investment (PRI) report consisting of the Freshfield Report and "Who Cares Wins." https://www.forbes.com/sites/betsyatkins/2020/06/08/demystifying-esgits-history--current-status/?sh=6e506a22cdd3 (downloaded 25 May 2022)

define their long-term performance. We face a growing need for sustainability since our natural resources are slowly running out. The yearly consumption of natural resources generally reaches its annual sustainability limit (Earth Overshoot Day[3]) over the summer. Currently we can only lean on the Earth's capacities, which obviously have their limitations. Our ecological footprint[4] is continuously larger than what we can afford ourselves. The growing population of the Earth needs more and more goods and energy in order to survive, but by producing goods, we destroy our natural reserves as well. This is the reason why we should revive, reuse, recover and recycle our products and resources continuously.

Military activities, among them wars are usually not only harmful for the environment but extremely expensive as well, which is not a new phenomenon. It was true in the ancient times and during the modern history as well. The famous Italian general and strategist, Raimondo Montecuccoli (1609–1680) was dealing with warfare and its consequences. He declared paraphrasing St. Augustine that "*In order to wage war you need three things: money, money and money.*"[5] He wisely said as well: "*No State can enjoy tranquility, nor repel hostile attacks, nor defend its laws, its religion and its liberty, unless it be armed.*"[6] Therefore we can confirm that peace, security and independence mainly depend on financial resources and on armed forces funded with money.

Financial resources for wars were usually granted by the wealthy (kings, emperors, nobles etc.) and later on by banks. Allegedly during the Napoleon–Wellington battle in Waterloo (1815) not only two opposing armies but also two different financial systems (the French, based on plunder and the British, based on debt) were fighting against each other.[7]

States and companies should aim to reach the highest level of sustainability, which is also applicable to the military defence system. In my opinion, a smart defence budget, rational military capabilities, and effective protection of national goods and values make a military defence system sustainable.

A smart defence budget prudently handles and utilizes a necessary amount of financial resources, which are allocated according to the national budget. It provides an adequate amount of capital for defence purposes and military expenditures. These resources are used to build up rational military capabilities. Rational military capabilities secure the tools of the effective protection of national goods and values. These capabilities are shaped by the armed forces as a whole, namely their personnel

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[3]   This year, Earth Overshoot Day lands on July 28; https://www.overshootday.org/ (downloaded 25 June 2022)
[4]   Ecological Footprint; The Ecological Footprint is the only metric that measures how much nature we have and how much nature we use.
      https://www.footprintnetwork.org/our-work/ecological-footprint/ (downloaded 25 May 2022)
[5]   BASSETT, Richard: For God and Kaiser – The Imperial Austrian Army, From 1619 To 1918; Yale University Press, 2015. p. 36. ISBN 978-0-300-17858-6;
[6]   Raimondo Montecuccoli Quotes; https://libquotes.com/raimondo-montecuccoli (downloaded 25 May 2022)
[7]   FERGUSON, Niall: The Ascent of Money – A Financial History of the World; Penguin Books, 2009. p. 81. ISBN 978-0-141-03548-2

and military technology. Effective protection of national goods and values is realised by a significant deterrence force, represented by the power of the entire military defence system.

Sustainability is a great aim on the global, national and regional level. Due to the limited scope of this publication I am going to focus on the national level and its military defence system, which according to my judgement has three main areas: armed forces, defence industry and military technology.

In my work, I am going to evaluate the three above mentioned areas in the context of sustainability and its main aspects, and at the end I also summarise the attributes of a smart and sustainable military defence system.

2. Sustainable armed forces

Armed forces are large consumers, given they use around 1-4% (in NATO states for example) of a country's gross domestic product (GDP) annually.[8] This amount cannot be significantly raised, since then other also important areas (healthcare, education, agriculture, industry, economy etc.) would experience a disadvantage by exaggerated defence expenditures. However, the impact of the armed forces on the society and on the economy might be substantially greater than it is believed. Armed forces need personnel, infrastructure and military equipment and they are integral part of the military defence system and the national economic performance. Using the military smartly and efficiently is a justifiable requirement expected by the citizens (taxpayers) of a state.

In order to find the right way towards sustainable armed forces, first we have to distinguish the state of peace and war. In these two main situations armed forces should function differently, however the transition process between the two phases should be rapid and flawless. In peacetime, spending on armed forces should be moderate but in wartime it should be as effective as possible. The starting point of the assessment is the National Security Strategy, the National Defence Strategy and the Military Doctrine. These documents usually describe and punctually define the political and economic environment, resources, capabilities and objectives of a military defence system. Every country has different historical heritage, political background, economic capability, social system and geopolitical or geostrategic situation. These factors provide the base of a national defence system that aims to defend and protect the state, its citizens, national values and interests from negative or undesirable external and internal impacts.

2.1. Attributes of the organisation and structure of the armed forces

The organisational and technical structure of the armed forces is defined in the national strategic documents that deal with geopolitical position, political orientation, resources, economy and technology of a state.

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[8]   Defence Expenditure of NATO Countries (2014–2021);
      https://www.nato.int/cps/en/natohq/news_193983.htm (downloaded 25 May 2022)

2.1.1. Strategic and geopolitical position of a state

Before designing and planning sustainable armed forces we have to describe and analyse their actual and potential strategic and operational environment. Strategic and geopolitical position of a country forecasts its potential security challenges and risks. The security of a state depends on its geographical location (ocean, see, land, mountains, plains, rivers, natural resources etc.) and its relationship with neighbouring countries.

The picture is not unambiguously clear but it might be generally stated that an alliance status is advantageous, while neutrality is less advantageous. A neutral (a non-allied) status means that a country can mainly count on its own financial and military capabilities in order to protect its national interests and values. Their sympathisers might provide limited political, economic, military, legal, media and moral help and support but they are legally not obliged to protect a foreign country against the enemies. However, a state in alliance can be supported by allied forces who can share their common responsibilities through smart defence or operation capabilities. An alliance might not be intimidated by an aggressor as easily as a non-allied country alone.

2.1.2. Political orientation

Political and legal systems of a state determine the foreign policy behaviour of its nation. Rule of law makes it possible to control armed forces by civilian authorities. This is inevitable to avoid misuse of military power and its personnel. Armed forces should work according to the international, community (for example EU) and internal law. Soldiers should respect war law, human rights and civilian interests.

2.1.3. Resources

Human and material resources define the military and defence capabilities of a state. Trained and motivated personnel are the backbone of modern and capable armed forces. Without reliable human resources the most modern military technology, weaponry system and equipment are not able to function properly. Well-trained and experienced professionals are the most important players in the armed forces. Material resources of the armed forces depend on the economic development and business performance of the country. NATO recommends a defence budget that should be at approximately 2% of the state's GDP.[9]

2.1.4. Economy and technology

A good economic potential makes it easier to build and retain modern and well-equipped armed forces. A prosperous economy makes it possible that a country can afford significant military expenses mainly for protecting its national values and interests. Usually, great powers spend extremely huge sums for their defence purposes. In 2021 the United States had about 801 billion USD defence budget in

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[9] The Wales Declaration on the Transatlantic Bond;
https://www.nato.int/cps/en/natohq/official_texts_112985.htm (downloaded 25 May 2022)

order to keep stability and security in the country and all over the world. China is also a huge military spender. Its annual defence budget was about 293 billion USD in 2021. Last year Russia spent about 65.9 billion USD for defence purposes.[10]

Innovation and technical/technological development help a country in creating independent armed forces. According to the global economy's concept every country should cooperate with others in order to have the necessary goods. When a country does not have the comparative advantage with its production, it is forced to import military goods for its own defence purposes. A highly developed country affords an efficient military industry that is often producing dual-use technology and equipment.

2.2. What are the external criteria for sustainable armed forces?

According to my assessment their
– costs make not too large load for the state;
– incomes decrease the expenses;
– weapons meet the recent requirements;
– infrastructure supports the functionality and obsolete capacities are sellable;
– troops are well-trained, ready for fighting, and highly motivated.

Every country wisely plans its national and defence budget. The latter should not be too high since it can be counterproductive. Defence budget is a national insurance and much more. The military defence system actively protects the produced goods and deterrents the enemy from any aggressive steps against the country. There are many methods to wisely determine a country's defence spending. The right value depends on the experiences, financial opportunities and the extent of the security threats the country should face actually.

During the planning of the defence budget, experts should take into account the optional incomes of the armed forces. Military infrastructure, especially training areas might be leased to foreign Armies and Air Forces for conducting military exercises and live firings as well. These lease incomes might decrease the expenses of the armed forces and commit to increase interoperability within an alliance thanks to the cooperation with the partners.

Weapons usually are modern or obsolete. But it is not an easy task to judge the form of the weapon systems a country needs. It depends on many factors: geostrategic and security situation, geographical location, foreign relations, political and economic background, historical and social traditions that determine the defence orientation of a country. The defence policy (invasive or restrained) and the weapon systems (offensive or defensive) of a country should be consistent with each other. In the same way the number of weapons and trained troops should be in harmony as well. Unused weapons or military vehicles are sometimes obsolete or in reserve. Reserve stock should be smartly piled in order to use ammunitions and weapons always on time.

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[10] Countries with the highest military spending worldwide in 2021; https://www.statista.com/statistics/262742/countries-with-the-highest-military-spending/ (downloaded 25 May 2022)

The infrastructure supports the military activity of the armed forces. Empty properties do not assist the defence systems so these old or obsolete military bases are to be used for other social or economic purposes. Military infrastructure should serve mainly the armed forces and their needs. Buildings should be modernised concerning their sustainability requirements. It means that their energy resources should be cost-effective and environmentally friendly.

The human resources of the armed forces are the most vital part of the defence system. Personnel (coming from the society) should be always well-trained and motivated. Training of a soldier costs generally much more money than the education of an average civilian person. This is the reason why professionals in the armed forces should be protected and retained with special benefits and allowances. Soldiers usually handle expensive military technology, vehicles and weapon systems. It is a further argument for why soldiers should be morally and financially appreciated, simply retained.

2.3. *What are the internal criteria for sustainable armed forces?*

In my opinion their troops preferably use
- recyclable and reusable goods;
- renewable energy resources;
- environment-friendly transport and training methods;
- digitalisation;
- non-bureaucratic practices.

Armed forces usually function as a small state so recyclable and reusable goods are really important factors in their circles as well. Soldiers and their military equipment, among others weapons and vehicles are huge consumers. Their consumption method might be a pilot project in a smaller amount that can model the consumption system of a state. In this regard, society might gain good experiences with using recyclable products in the military or paramilitary institutions.

Renewable energy resources are more and more popular in civilian life. It is understandable that mankind should increasingly take care of its environment. Destroying or misusing the nature has irreversible negative consequences. Armed forces – which are huge energy consumers – should be obliged to use partially renewable energy sources in order to protect our future. Solar, wind, hydro and geothermic energy resources are much more sustainable than fossil (coal, oil or gas) raw materials that are available only in limited amounts on the Earth. This is the reason why we should save energy and find solutions that are applying less energy-intensive methods. Energy efficiency is the motto of future mobility and heating solutions in the armed forces, too.

Environmentally friendly transport solutions make it possible that at least our neighbourhood remains clear or unpolluted. Locally produced clean energy and transporting it to densely populated areas can solve many problems, including the direct burden on our environment. Transportation of people, goods and energy is one of the biggest challenges in the economy. Military troops should be transported from A to B in order to fulfil their tasks. In the near or medium-term future electro mobility will play an important and inevitable role in the armed forces as well. Environmentally

friendly training means that troops during their exercises try to protect the natural environment of training areas and shooting ranges (see Natura 2000 protected areas[11]).

Digitalisation in the armed forces is not only a need, it is a must. Nowadays this is the easiest way to save financial resources and time in the administration. Information technology (IT) solutions make it possible that huge databases can be used and stored relatively safely and cheaply. Software more and more applies machine learning (ML), deep learning (DL), artificial intelligence (AI) and internet of things (IoT), and replaces hardware. These methods in the armed forces are substitutes for people and human resources that are much more expensive than machines in any form. Simulators and unmanned vehicles – which are useful gadgets of digitalisation – efficiently mitigate human risks and financial costs.

Non-bureaucratic military practices are especially important since they mean feasible rules, rational regulations and logical (smart) processes. People and machines work according to functional procedures that are necessary side effects, and they are not involved directly in the value creation or production but are really conducive. Corporate governance systems belong to this category and are widely used in public administration, industry and services but also in the armed forces as well.

Existing external and internal criteria of the sustainable armed forces are forming a stable frame for the functioning military defence system. Sustainability of the armed forces is a modern challenge that might be granted by mindful planning and efficient application of the military resources, capacities and capabilities. Currently there are a plenty of opportunities to improve the sustainability of the armed forces but the necessary feasibility studies are not available yet.

3. Sustainable Defence Industry

After analysing the sustainability of the armed forces as a whole I would like to turn to the defence industry and its sustainability. It is not an easy task to evaluate the global defence industry so I have chosen some significant defence industry companies to show and demonstrate their sustainability efforts. My aim is not to provide a complete analysis. I would like to emphasise that even the defence industry should deal with sustainability requirements approved by international organisations and particular states.

According to the industry 4.0 program[12] modern industries should implement up-to-date methods and technologies. These include sustainable raw materials, low energy consumption production process, robotics, ML, DL, AI and IoT in order to mitigate the ecological footprint of production. Every factory has negative impacts on the environment, and it is inevitable. However, it is not irrelevant how significant this environmental burden is. Nowadays modern plants are struggling to decrease their

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[11] The Natura 2000 protected areas network;
https://www.eea.europa.eu/themes/biodiversity/natura-2000 (downloaded 25 May 2022)

[12] Industry 4.0 and the fourth industrial revolution explained; Industry 4.0 is used interchangeably with the fourth industrial revolution and represents a new stage in the organization and control of the industrial value chain. https://www.i-scoop.eu/industry-4-0/ (downloaded 02 June 2022)

CO_2 emissions and use less energy and material resources. This is the best way to protect our natural and human environment from adverse and irreversible effects.

The production of goods consumes raw materials (built into the product) and energy. But the kind of commodity and energy used in the manufacturing process is not negligible. Green production[13] means the application of environmentally friendly made energy that harms our nature less than a polluting fossil one. Fairtrade provides a legal and traceable procurement, production and supply chain for consumers.

In order to describe the defence industry's sustainability I have researched the 100 biggest military industrial companies.[14] From the list I have selected seven companies from different countries and have collected, evaluated and assessed their sustainability efforts. (See the next table.) The rank is set up according to the defence revenues in 2020 from the top to the bottom. Revenue from defence shows the percentage of the defence rate in the entire industrial portfolio of a certain company.

Defence industry companies selected from the Top 100 companies with significant defence revenue.

Rank in 2021	Company	Country	2020 Defence Revenue (in millions of USD)	Revenue from Defence
1.	Lockheed Martin	U.S.	62,562.00	96%
6.	Aviation Industry Corporation of China	China	25,468.59	38%
7.	BAE Systems	U.K.	23,502.38	95%
12.	Airbus	Netherlands/France	12,004.28	21%
13.	Leonardo	Italy	11,173.33	73%
20.	Almaz-Antey	Russia	6,066.31	92%
29.	Rheinmetall	Germany	4,249.50	63%

3.1. Lockheed Martin's sustainability

Lockheed Martin Corporation is a global security and aerospace company. It operates in the following business segments: Aeronautics, Missiles and Fire Control (MFC), Rotary and Mission Systems (RMS) and Space. The company was founded in 1961 and is headquartered in Bethesda, Maryland, United States.[15]

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[13] Green production; Green production is a business strategy that focuses on profitability through environmentally friendly operating processes. https://www.referenceforbusiness.com/small/Eq-Inc/Green-Production.html (downloaded 02 June 2022)

[14] Top 100 for 2021; https://people.defensenews.com/top-100/ (downloaded 06 April 2022)

[15] Lockheed Martin (LMT); https://www.forbes.com/companies/lockheed-martin/?list=just-companies/&sh=d59f8b768697 (downloaded 08 April 2022)

In 2021, the Corporation employed approximately 114,000 employees worldwide and generated net sales of about 67 billion USD. Lockheed Martin is committed to sustainability which is represented in its Sustainability Reports published in April every year. The latest report includes global data and activities for the calendar year 2021. Sustainability goals are in-line with business strategy and ongoing commitments to foster innovation, integrity and security in order to protect the environment, strengthen communities and propel responsible growth.[16]

In order to keep sustainability in its commercial and military portfolio Lockheed Martin develops cyber resilience, continues space exploration, extends missile defence, sustains long-term readiness, increases autonomy in mobility and weaponry, secures air dominance with advanced fighters (see F-35 Lightning II combat aircraft), improves heavy lift capability with its helicopters and prefers AI in data analysis.[17]

Lockheed Martin has revealed the 2025 Sustainability Management Plan that reflects stakeholder feedback, internal and external trends, and continued evolution of the company's business. The plan contains four main chapters: Advancing Resource Stewardship, Elevating Digital Responsibility, Fostering Workplace Resiliency and Modelling Business Integrity.

There are some selected sustainability objectives in the above-mentioned four topics:
– By 2030 match 30% of electricity used across Lockheed Martin's global operations with electricity produced from renewable sources.
– Offset 100% of carbon emissions resulting from business-related travel.
– Increase traceability of critical mineral resources and substances used in the supply chain, through data analysis and mitigation for signature programs.
– 50% of Lockheed Martin employees will have been trained in data literacy and data-centric practices.
– Increase representation of women and people of colour company-wide.
– Reduce the number of days away from work due to occupational injury or illness.
– Establish a risk-based approach to serious incident and fatality prevention programs.
– Achieve 100% completion of required employee training on gifts and business courtesies and international business practices annually through 2025.[18]

The 2025 Sustainability Management Plan provides the framework for the integration of sustainability within the company's business, but there are additional important topics (supporting sustainable development, human rights, supply chain sustainability, social impact, waste and water management, remediation) that are also

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[16] 2021 Sustainability Report – Propelled by Principle; https://sustainability.lockheedmartin.com/sustainability/content/Lockheed_Martin_2021_ Sustainability_Report.pdf (downloaded 07 June 2022)

[17] Choose your mission; https://www.lockheedmartin.com/en-us/yourmission.html (downloaded 07 June 2022)

[18] 2025 Sustainability Management Plan; https://sustainability.lockheedmartin.com/sustainability/our-sustainability-approach/2025-sustainability-management-plan.html (downloaded 07 June 2022)

critical to reduce the environmental footprint, to positively contribute to communities and to uphold the commitment to integrity.[19]

Summarising Lockheed Martin's sustainability efforts I can state that the company is highly committed to achieve environmental protection and corporate social responsibility goals with its widespread programs. However, the self-declared sustainability aims' fulfilment is not controlled by independent authorities since widely accepted sustainability standards and indicators are still missing in the world and in the United States.

3.2. *Responsibility at Aviation Industry Corporation of China*

The Aviation Industry Corporation of China Ltd. (AVIC) was founded in November 2008 with the restructuring and consolidation of the China Aviation Industry Corporation I and II. AVIC provides complete services to customers in many sectors, from research and development to operation, manufacturing and financing. Its business units cover defence, transport aircrafts, helicopters, general avionics and its systems, research and development, flight testing, trade and logistics, assets management, finance services, engineering and construction, as well as automobiles. AVIC has over 100 subsidiaries, 24 listed companies and more than 400,000 employees.[20]

The company's sustainability objectives are defined in its Corporate Social Responsibility (CSR) program. The 2017 CSR Report[21] is the last available one on the website of the Group Company. Its main parts are dealing with the following important aspects:
– Global Citizen: AVIC supports the Belt and Road Initiative and Aerial Silk Road Initiative in order to strengthen interconnection, industry investment and trade cooperation in partner countries, among them in Africa.
– Creating a Better World Beyond Commerce: AVIC carries out vocational education, mobile hospital building, training of national youth service teams and other livelihood projects in African countries, dedicating to improve African youth's skills and employment and to develop local medical standards.
– Public Welfare: AVIC has joined China's national poverty alleviation project since 1993 and has launched 532 such a programs ranging from industrial development, education funding, infrastructure and improvement of people's livelihood environment. Blue Chalk, a rural teacher training project organised by AVIC dating from 2010, provides free professional training to teachers in developing rural areas.[22]

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[19] Beyond the sustainability management plan;
      https://sustainability.lockheedmartin.com/sustainability/beyond-the-smp/index.html?c=human-rights (downloaded 07 June 2022)
[20] AVIC Overview; https://www.avic.com/en/aboutus/overview/?PC=PC (downloaded 09 April 2022)
[21] Social Responsibility Report 2017;
      https://www.avic.com/upload/resources/file/2021/06/16/43979.pdf?PC=PC (downloaded 09 April 2022)
[22] Corporate Social Responsibility; https://www.avic.com/en/aboutus/csr/?PC=PC downloaded 9. April 2022

In 2017 AVIC set up a Group Energy-Efficiency Research and Development (R&D) Centre; improved the three major green aviation systems for supervision, statistics and assessment; created four platforms for training, promotion, inspection and R&D; and outperformed the indicators of energy conservation and emission reduction. AVIC integrates environmental requirements and standards into product R&D, manufacturing, services and other processes; actively develops high efficiency and environmentally friendly engines, turboprop regional and advanced civilian aircraft; and strives to build a green aviation industry chain.[23]

Aviation Industry adheres to the sustainable development concept called "innovative, coordinated, green, open and sharing", and carries out the sustainable development concept of green and environmental protection starting in the design stage.

AVIC Hefei Jianghang Aircraft Equipment Corporation Ltd. uses the state-level enterprise technology centre as a platform and utilizes advanced aerial oxygen production and supply technology to develop high-, mid-, and low-grade oxygen production and air purification equipment, which can effectively remove the harmful substances such as haze, smoke, dust, mould and suspended virus as well as the harmful gases from the air.[24]

The Group Company pays attention to the cultivation of talents and to help excellent technical expertise constantly emerge. It has taken a series of innovative measures such as organising skills contests and establishing model worker innovation studios, which have set up a broad platform for the growth of excellent talents through mentoring.[25]

AVIC is committed to CSR but its sustainability programs are not so complex and completed as it is usually expected from developed companies. However, it can be stated that its sustainability programs are dual used for civilian and for military purposes as well.

3.3. *BAE Systems' responsibility*

BAE Systems employs a workforce of 90,500 people in more than 40 countries. Advanced defence technology at the company protects people and national security, and keeps critical information and infrastructure secure. The company provides customers with competitive products in the air, maritime, land and cyber domains.[26]

Sustainability is an emphasised topic at the website of the BAE Systems since there is an independent headline for it. The company adheres to make business that operates responsibly and sustainably. For BAE Systems there are some highlighted topics in order to achieve sustainability objectives: Environment and climate change;

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[23] Social Responsibility Report 2017;
https://www.avic.com/upload/resources/file/2021/06/16/43979.pdf?PC=PC p. 43.
(downloaded 09 April 2022)
[24] Ibid. p. 43.
[25] Ibid. p. 56.
[26] Our company; https://www.baesystems.com/en/our-company (downloaded 10 April 2022)

Social impact; Governance; People; Investment in technology and R&D; Safety, wellbeing and human rights; Responsible supply chain.

3.3.1. Environment and climate change

BAE Systems' target is to achieve net-zero greenhouse gas emissions across its operations by 2030. Its goal is to develop and implement a long-term strategy that reduces the impact of the activities and products on the environment. Part of this strategy is to reduce the energy intensity by purchasing renewable energy and developing on-site renewable electricity supplies where practicable.[27]

The company is already creating energy efficiencies for UK Royal Navy warships, as well as replacing old infrastructures with the latest carbon-neutral technologies and renewable options. It has joined the United Nations' Race to Zero campaign, by signing up for the Business Ambition for 1.5°C[28]. The announced target to achieve net-zero greenhouse gas emissions across BAE Systems' operations by 2030 has been extended for the value chain by 2050 as well.

Australia's Hunter Class Frigates will be built in one of the most digitally advanced, sustainable and energy-efficient shipyards in the world. In the United States, BAE Systems' San Diego shipyard has been recognised for its environmental sustainability practices including its all-electric dry dock fitted with LED lighting and electric cranes, which are reducing annual electricity usage and diesel fuel consumption. At Portsmouth Naval Base in the UK, work is underway to de-carbonise facilities and teams are using augmented reality and AI to improve operational efficiency while reducing carbon emissions. In recent rehearsals, the company reduced the production time of a large engine mount frame for a Eurofighter Typhoon combat aircraft, from 100 weeks to just 60 days.

The adoption of synthetic pilot training in the UK – more than 13,000 hours in 2020 – helped to save around 75 million litres of aviation fuel, equivalent to 184,000 tonnes of CO_2. Her Majesty Ship (HMS) Spey produced by BAE Systems for the Royal Navy is one of the most environmentally friendly ships thanks to a urea filter that reduces nitrogen oxide emissions from the diesel generators by around 90%. PHASA-35 is a pioneer, solar-electric, high altitude and long-endurance (HALE) unmanned aircraft whose battery and solar technology could allow the aircraft to stay in the stratosphere for up to a year, providing persistent monitoring, surveillance or communication capabilities.

Globally, more than 13,000 buses have been equipped with BAE Systems' low and zero-emission electric drive propulsion systems capable of saving more than 100 million litres of fuel and preventing approximately 313,000 tonnes of CO_2 emissions

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[27] Environment and climate change;
https://www.baesystems.com/en/sustainability/environment-and-climate-change
(downloaded 10 April 2022)

[28] Business ambition for 1.5°C; https://sciencebasedtargets.org/business-ambition-for-1-5c
(downloaded 10 April 2022)

each year. BAE Systems' engineers are working to address the emerging demand for similar electrification technology in the marine, military and air markets.[29]

3.3.2. Social Impact

The BAE systems' social impact might be characterised by supporting active service personnel, veterans and their families in the armed forces; inspiring young people to consider science, technology, engineering and mathematics (STEM) subjects and careers with education and skills; and working to support the local communities in which the company operates. As well as donations, sponsorship and employee fundraising, BAE Systems develops and supports structured education programmes and enables its employees to volunteer their skills and time.[30]

3.3.3. Governance

Robust governance remains at the core of the company's business and underpins the sustainability of the activity. All employees are required to complete ethics training annually. The company takes a proactive leadership role in its engagement with the defence industry, governments, NGOs (non-governmental organisations) and other interested parties to develop initiatives that will address the key ethical issues affecting the defence industry. BAE Systems is a proactive member of both the Aerospace and Defence Industries Association of Europe and the Aerospace, Defence, Security and Space trade associations.[31]

3.3.4. People

To attract, recruit and retain people with the appropriate skills, the company strives to create an inclusive, agile environment in which everyone can do their best work and feels valued for their contribution ensuring the long-term sustainability. The company's ambition is to be recognised as the leading employer in the defence and security sectors for valuing diversity and inclusion. It would like to increase the representation of race, ethnicity, and gender (50% will be women in the Executive Committee by 2030) in the workforce and across all its localities.[32]

3.3.5. Investment in technology and R&D

The company is working on a range of technologies – like low-emission propulsion, energy-storage, augmented and virtual reality, AI, automation and so on – to help reducing the environmental impact of these activities with next-generation

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[29] Racing towards zero; https://www.baesystems.com/en/article/racing-towards-zero-to-drive-innovation-and-protect-against-future-threats (downloaded 10 April 2022)

[30] Social impact; https://www.baesystems.com/en/sustainability/social-impact (downloaded 10 April 2022)

[31] Governance; https://www.baesystems.com/en/sustainability/governance (downloaded 10 April 2022)

[32] People; https://www.baesystems.com/en/sustainability/people (downloaded 10 April 2022)

technologies. Its aim is to clear the path for electric and solar power flight and help urban air mobility aircraft take off.[33]

3.3.6. Safety, wellbeing and human rights

BAE systems' employees have the right to a safe and inclusive working environment where they have access to the right tools and support to manage their own wellbeing. With its Safety Policy the company strives for world-class safety conditions and performance across all its businesses and therefore it monitors and aims to eliminate, mitigate, and manage all risks (COVID-19 pandemic as well).[34] It is really important for the company to respect and uphold human rights, wherever it operates and where it has full and direct control.[35]

3.3.7. Responsible supply chain

Suppliers embrace the same ethical standards as the company does. To support and follow up on this the company has an extensive governance structure with a strong focus on a responsible supply chain.[36]

The BAE Systems is committed to achieve its sustainability goals in order to keep the environment liveable and safe. Its programs focus on the mitigation of the negative effects of the own and partners' production and services. BAE Systems' sustainability efforts are built in its facilities and products, ships, aircraft and buses as well. The company would like to be a leading employer in the defence-military-security sector for valuing diversity and inclusion.

3.4. Sustainability at Airbus

Airbus is a leader in designing, manufacturing and delivering aerospace products, services and solutions to customers worldwide. With over 130,000 employees and as the largest aeronautics and space-company in Europe, Airbus is at the forefront of the aviation industry. It builds innovative commercial aircrafts and consistently captures about half of all commercial airliner orders. Sustainability plays an important role at Airbus, showcased by the motto appearing immediately after the opening of the company's website: "Pioneering sustainable aerospace for a safe and united world."[37]

Airbus believes that a successful business is a responsible business. The company-wide sustainable approach can be characterised by four sustainability

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[33] Investment in technology and R&D; https://www.baesystems.com/en/sustainability/investment-in-technology-and-research-and-development (downloaded 10 April 2022)

[34] Safety-and-wellbeing; https://www.baesystems.com/en/sustainability/safety-and-wellbeing (downloaded 10 April 2022)

[35] Human rights; https://www.baesystems.com/en/sustainability/human-rights (downloaded 10 April 2022)

[36] Responsible-supply-chain; https://www.baesystems.com/en/sustainability/responsible-supply-chain (downloaded 10 April 2022)

[37] Airbus; https://www.airbus.com/en and https://www.airbus.com/en/who-we-are (downloaded 10 April 2022)

commitments, which contribute to a healthier environment and stronger communities in the future: Clean aerospace; Human rights and inclusion; Safety and quality; and Business integrity.[38]

3.4.1. Clean aerospace

The main focus of Airbus' sustainability strategy is to reduce CO_2 emissions of its aircraft and its industrial environmental footprint at its sites worldwide and throughout its supply chain. The main goal is to meet key industry-wide environmental performance targets. In addition, Airbus would like to bring the world's first zero-emission commercial aircraft to the market by 2035.

Today the aviation industry represents approximately 2.5% of global human-induced CO_2 emissions. Airbus is committed to lead the decarbonisation process of the aerospace sector. This includes reducing the CO_2 emissions of its aircraft, helicopters, satellites and launch vehicles, as well as production lines and supply chain. The aviation industry has decided on the following key targets of decarbonisation:
  – from 2020 aviation will compensate for CO_2 emissions (carbon-neutral growth over the 2019 emissions baseline);
  – net-zero carbon emissions by 2050 that support the Paris Agreement's 1.5°C goal.

Airbus is improving fuel burn of its existing fleet. The latest-generation fuel-efficient aircraft have enabled the aviation industry to reach an annual fuel efficiency of 2.1% over the last decade. This has saved 10 billion tons of CO_2 since 1990.

Airbus' approach to environmental responsibility starts at the design stage. The company selects the right materials and uses them efficiently during production. Airbus works closely with its suppliers to select materials that are sourced ethically and responsibly with minimal impact on the environment that grants a sustainable supply chain. After aircraft delivery, Airbus continues to take into account the environment by optimising aircraft operations and recycling end-of-life aircraft.

More than 85% of Airbus' employees work under ISO 14001, which defines strong criteria for managing environmental responsibility. The so-called high5+ programme targets (CO_2, energy, water, air emission, waste) provide a significant reduction of its environmental footprint in manufacturing activities. The measured progress is usually published in the Annual Reports.

Airbus is committed to reduce its industrial CO_2 emissions by up to 63% by 2030 in line with a 1.5°C scenario. The use of Sustainable Aviation Fuel (SAF)[39] combined with improved efficiency in operations will support this ambition. The company is working on to increase the share of renewable and low-carbon energy sources at its sites. Improved monitoring, increased efficiency for lighting, heat and steam, and new

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[38] Sustainability commitments; https://www.airbus.com/en/sustainability/sustainability-commitments (downloaded 10 April 2022)

[39] Sustainable aviation fuel: A recipe for cleaner flight; https://www.airbus.com/en/newsroom/stories/2021-04-sustainable-aviation-fuel-a-recipe-for-cleaner-flight (downloaded 09 April 2022)

constructions in line with certified building standards are additional supporters. To limit water consumption, Airbus focuses on increasing water recycling and reuse in industrial practices. Increased measuring and monitoring is not only key to raise awareness, but also to find reduction potentials and detecting leaks. New ambitions as part of the high5+ programme have been set for waste management for 2030, among others reducing the amount of produced waste by 20%. Direct routings can result in approximately 10% less fuel consumption in aircraft, as well as significantly reduced CO_2 and noise emissions.[40]

Disruptively reducing the CO_2 emissions of aircraft and helicopters can not be achieved using existing technologies. This is why Airbus invests in electrification, hybridisation and hydrogen to achieve decarbonisation ambitions. Airbus is committed to develop, build and test alternative-propulsion systems – powered by electric, hydrogen and/or solar technology – in order to enable the aviation industry to disruptively reduce the CO_2 emissions of commercial aircraft, helicopters, satellites and future urban air mobility vehicles.[41]

Today, all Airbus airplanes and helicopters are certified to operate on up to a 50% blend of SAF. These alternative fuels enable an up to 80% gain in terms of CO_2 reduction. Airbus' objective for commercial aircraft is to achieve certification of 100% SAF by 2030.

Airbus' earth-observation satellites are monitoring deforestation, rising sea levels and greenhouse gas emissions in the atmosphere. Today 27 of Airbus satellites are involved in climate change monitoring and an additional 18 are in the development phase.[42]

3.4.2. Human rights and inclusion

Airbus has a responsibility to respect human rights and ensures that people are treated with dignity in its business, operations and supply chain. As a signatory to the United Nations Global Compact since 2003, Airbus is committed to uphold international human rights standards and principles.

Airbus' Supplier Code of Conduct, based on the International Forum on Business Ethical Conduct (IFBEC) model, is the document of reference for its approach to responsible supplier management. In 2019, Airbus joined the Responsible Minerals Initiative, which aims to find cross-industry solutions to minimise social risks in mineral supply chains.

Airbus believes in the power of being different. Its workforce unites people from 140 nations, and more than 20 languages are spoken across its sites worldwide. Airbus

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[40] Environmental responsibility;
https://www.airbus.com/en/sustainability/environment/environmental-responsibility (downloaded 10 April 2022)

[41] Zero emission; https://www.airbus.com/en/innovation/zero-emission (downloaded 10 April 2022)

[42] Earth-observation for climate action;
https://www.airbus.com/en/sustainability/environment/climate-change/earth-observation-for-climate-action (downloaded 10 April 2022)

welcomes people from all backgrounds and strives to increase the representation of underrepresented groups.[43]

3.4.3. Safety and quality

Airbus' top priority is to protect and safeguard its people, suppliers, communities, customers and assets from health and safety risks arising from its business activities. The company focuses on developing rigorous safety management guidelines to ensure its long-term competitiveness.[44]

The company's safety culture drives the design and operations of its full product range supported by continuous technological improvements. Airbus' mission is to protect the safety of its fleet for everyone who is flying on board, using, or operating an Airbus product.[45]

3.4.4. Business integrity

Airbus' Ethics and Compliance Programme ensures the company's business practices conform to applicable laws, regulations and ethical business principles, as well as contributes to a culture of integrity. The programme is structured around three key risk areas: business ethics/anti-corruption compliance, export compliance and data protection compliance. The foundation for integrity at Airbus is its Code of Conduct (CoC). The Code is intended to guide daily behaviour and help employees resolve the most common ethical and compliance issues.

The company rejects any kind of corruption, whether public or private, active or passive. Airbus' anti-corruption policy summarises a zero-tolerance stance. All Airbus employees receive Ethics and Compliance training including on Anti-Corruption.[46]

Airbus is committed to fulfil its sustainability goals and believes in their long-term positive impacts. Its ambitious aim is to have the first zero-emission commercial aircraft by 2035 that might revolutionise flight methods. The company insists on performing its sustainability aims in the defence portfolio as well but it needs huge compromises.

3.5. Leonardo's commitment to sustainability

Leonardo Group develops multi-domain operational capabilities in the aerospace, defence and security sectors. Its company profile in 2021 shows 14.1 billion EUR revenues, 35.5 billion EUR order portfolio, 50,413 employees, 106 sites

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[43] Human rights; https://www.airbus.com/en/sustainability/corporate-citizenship/human-rights (downloaded 10 April 2022)

[44] People safety; https://www.airbus.com/en/safety/people-safety (downloaded 10 April 2022)

[45] Safety of our products; https://www.airbus.com/en/safety/safety-of-our-products (downloaded 10 April 2022)

[46] Exemplify business integrity; https://www.airbus.com/en/sustainability/sustainability-commitments#business (downloaded 10 April 2022)

worldwide, 12.8% of annual revenues invested in R&D and 50% of investments aligned with Sustainable Development Goals (SDGs).

The company plays a prominent role in major international strategic programmes and is a trusted technological partner of governments, defence agencies, institutions and enterprises. Its business areas are electronics, helicopters, aircraft, cyber and security, space, unmanned systems, aircraft structures and automation.

"The Be Tomorrow – Leonardo 2030" strategic plan defines Leonardo's future ambitions, aimed at consolidating the company's position as a leader in the international air defence and security (AD&S) sector and maintaining its central role in important strategic cooperation initiatives, as well as driving future technological cycles.[47]

Sustainability plays a highlighted role inside the company's policy and activity that are characterised by Sustainability governance, Sustainability in action, Responsible business, Reporting, ESG indices and ratings, Protecting the planet and Participation in associations topics.

3.5.1. Sustainability governance

The Board of Directors, with the support of the Sustainability and Innovation Committee and the Control and Risk Committee, is responsible for defining strategic guidelines on sustainability and verifying the achievement of the Sustainability Plan's goals in line with the Group's Business Plan.

The Sustainability Unit, headed by the Chief Technology and Innovation Officer is responsible for steering, managing, monitoring and conducting a strategic dialogue about Group sustainability themes. The Sustainability Coordinators of the various divisions, corporate functions and Group companies are the internal points of contact involved in defining, implementing and monitoring the Sustainability Plan.[48]

3.5.2. Sustainability in action

For Leonardo, sustainability is the ability to have a long-term vision, considering the impact of activities on the entire value chain. This is essential for the long-lasting progress of people and the planet, in line with the Sustainable Development Goals (SDG) of the UN Agenda 2030[49].

Leonardo plans to act in order to generate a significant impact, particularly on the achievement of six core SDGs. This commitment will include Leonardo's activities to support skills development (SDG 4), creating qualified work and growth for partners (SDG 8), supporting innovation and digital transformation (SDG 9), and developing solutions promoting the security of people, infrastructure and

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[47]   Leonardo – Leader in Aerospace, Defence & Security;
      https://www.leonardo.com/en/about/profile (downloaded 07 May 2022)
[48]   Sustainability Governance; https://www.leonardo.com/en/sustainability/governance
      (downloaded 07 May 2022)
[49]   The SDGs in Action; https://www.undp.org/sustainable-development-goals (downloaded
      07 May 2022)

communities (SDG 11) and fighting climate change (SDG 13), while integrating sustainable production models into Leonardo's work (SDG 12).

The Sustainability Plan aims to maximise the impact of Leonardo's actions, identifying additional SDGs that the company can contribute to, such as the reduction of food waste (SDG 2), the development of solutions to fight health emergencies (SDG 3), the promotion of a culture that supports gender equality (SDG 5), the mitigation of environmental impacts on the oceans and to support biodiversity (SDG 13 and 14), and the continuous strengthening of a responsible business model and human rights (SDG 16) within the company and its supply chain.[50]

3.5.3. Responsible business

The foundation of Leonardo's approach to sustainability is the commitment to conduct business responsibly at every level of the supply chain. This responsibility has many aspects, encompassing people, a large-scale supply chain and the protection of the planet. For this reason, Leonardo is involving its suppliers (aiming at excellence in the supply chain) in sustainability initiatives focused on essential aspects, such as social and environmental responsibility.[51]

3.5.4. Reporting

Leonardo publishes the Integrated Report to offer a complete, measurable and transparent view of the value generated by the company in a single document, connecting financial performance with environmental, social and governance information.[52]

3.5.5. ESG indices and ratings

Leonardo's ESG performance and transparency in communications are assessed periodically by the analysts, rating agencies and other international organisations. ESG assessments support the financial community's investment choices and provide information on the risks and opportunities the company is exposed to. Leonardo has maintained or improved its position in the ratings and ESG indices, ranking as a leader in most sectors.

Leonardo is the highest-ranking company in the aerospace and defence sector according to the assessments of Sustainalytics (updated to October 2021) among 91 companies. Leonardo's ESG Risk Rating is 23, which is the lowest risk profile.[53]

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[50] Sustainability in action through Sustainability Plan's goals; https://www.leonardo.com/en/sustainability/sustainability-in-action (downloaded 07 May 2022)

[51] Responsible Business; https://www.leonardo.com/en/sustainability/responsible-business (downloaded 07 May 2022)

[52] Sustainability Reports and Integrated Reports: between transparency and innovation; https://www.leonardo.com/en/sustainability/reporting (downloaded 07 May 2022)

[53] ESG Indices and Ratings; https://www.leonardo.com/en/sustainability/indices-ratings (downloaded 07 May 2022)

3.5.6. Protecting the planet

Leonardo's commitment to protecting the planet focuses on three main areas: fighting the climate crisis through decarbonisation; implementing solutions, including Earth monitoring and more efficient city management; and finally promoting circular economy models and action plans.

There are some characteristics of Leonardo's environmental commitments in 2021: 77% of employees in sites are certified with ISO 14001 environmental management systems (72% in 2019), 80% of electricity are purchased from renewable sources, and more than 16,800 MWh annual electricity savings are thanks to over 12,000 LEDs installed since 2014, and more than 190,000 hours of training have been organised in environmental, health and safety issues.[54]

3.5.7. Participation in associations

In 2018, Leonardo joined the United Nations Global Compact, the world's largest corporate sustainability initiative, based on universal principles linked to human rights, labour, the environment and the fight against corruption. In 2021, Leonardo was named a Global Compact LEAD company for the second year in a row.

Leonardo has taken part in the activities of the Fondazione Global Compact Network Italia, including as a founding member since 2018. In September 2021 it became a member of CSR Europe, the leading European business network for Corporate Sustainability and Responsibility.[55]

Leonardo is committed to sustainability with its plans, actions and expectations that are successful in its programs. Especially the UN Agenda 2030's SDGs are in the focus of its sustainability endeavours. In addition, the company would like to achieve a leading position in the aerospace sector concerning the international sustainability efforts.

3.6.   Corporate social policy at Almaz-Antey

Almaz-Antey Corporation is a versatile company that develops among others aerospace defence systems; anti-aircraft, anti-missile and anti-space defence weapon complexes; airborne, ground, space-based and ship-mounted radar systems; missile attack warning and outer space control systems; automated aircraft and air defence control systems; and ground-based equipment of the GLONASS[56] system. It further deals with modernising the Unified Air Traffic Management System in the Russian Federation and implementing national scientific, technical and technological development programs.[57]

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[54]   Protecting the Planet; https://www.leonardo.com/en/sustainability/protecting-the-planet (downloaded 07 May 2022)
[55]   Participation in Associations; https://www.leonardo.com/en/sustainability/associations (downloaded 07 May 2022)
[56]   GLONASS: Russian Global Navigation Satellite System
[57]   Scientific and Technical Activity; http://www.almaz-antey.ru/en/nauchno-tekhnicheskaya-deyatelnost/ (downloaded 07 May 2022)

Almaz-Antey employs 129,000 individuals, more than 45% of which hold a degree. The average age of workers is 45.6 years. A high scientific potential has been accumulated at the Corporation, 1068 employees have PhD degrees and 175 Dr. Habil-title.

On the website (in English version) of Almaz-Antey there are only few words about the social policy of the company and there is no significant mention of sustainability. However, the Russian version includes the anti-corruption policy and the Ethical Codex as well.

The personnel and social policy of the Almaz-Antey is aimed mainly at preserving and developing the human resources potential, ensuring the current and future needs of the Corporation. The development and implementation of the corporate social policy of the Almaz-Antey are only shortly mentioned among corporation's personnel policy guidelines.

Great attention is paid by the corporation to the work of attracting and securing young qualified specialists. Annual conferences and other meetings are held with young scholarship holding consultants of various corporation enterprises. Additionally, young specialists are provided with loans and advances to purchase housing.

In order to improve employees' social protection at the corporation, voluntary medical insurance is organised and carried out at the expense of the employer's funds providing a wide range of medical services, as well as a number of other activities, for example, organising recreational events.

Almaz-Antey traditionally interacts with 52 leading educational institutions of higher education in the country. The corporation's organizations and facilities participated in the implementation of the state plan to train specialists with secondary vocational and higher education for organizations of the military-industrial complex for 2016-2020.

Some years ago nominated in "Integrated structure of military-industrial complex in the sphere of activity of the Ministry of Industry and Trade of Russia of high socio-economic efficiency", Air and Space Defence Corporation Almaz-Antey was recognized as the winner.

The personnel potential question of the corporation is becoming one of the most important factors determining the further development and growth rates of production in the conditions of a shortage of qualified personnel in the labour market. In this regard, the issues of staffing are annually on the agenda of meetings of the boards of directors in all the corporation's subsidiaries.[58]

For Almaz-Antey it is not unambiguously important to openly have sustainability programs and activities and to provide them for its stakeholders. The company's corporate social responsibility program focuses mainly on human

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[58] Staff and Social Policy; http://www.almaz-antey.ru/en/kadrovaya-i-sotsialnaya-politika/ (downloaded 07 May 2022)

resources and hardly deals with avoidance of pollution, nature protection and environmentally friendly solutions.

3.7. Sustainability at Rheinmetall

Rheinmetall AG was established in 1889 as „Rheinische Metallwaaren- und Maschinenbaufabrik Aktiengesellschaft". Today Rheinmetall AG is listed on the stock exchange, and stands for a stable company that operates internationally and is active in various markets with an innovative range of products and services. Rheinmetall's structure comprises the five divisions of Vehicle Systems, Weapon and Ammunition, Electronic Solutions, Sensors and Actuators, and Materials and Trade. The focus on sustainability is an integral part of Rheinmetall's strategy. The company aims to achieve CO_2 neutrality by 2035.

With about 25,000 employees at 133 locations and production sites worldwide, Rheinmetall generated sales of approximately 5.7 billion EUR in 2021. In the same fiscal year the company achieved the following other results: 139 customer countries, 594 million EUR operating result, 10.5% operative margin, 419 million EUR operating free cash flow and 24.5 billion EUR order backlog.[59]

On the website of Rheinmetall the Sustainability headline comprises the following topics: Corporate Social Responsibility, ESG-reporting, Compliance and Corporate governance, Stakeholder, Employees, Ecology and Society.

3.7.1. Corporate Social Responsibility

Rheinmetall believes that a company can enjoy long-term success only if it integrates coordinated economic, ecological and social factors into business activities and creates added value for itself, its employees and society. Rheinmetall does its best to contribute to economically stable and ecologically responsible business development.[60]

3.7.2. ESG-reporting

The ESG reporting 2021 fact book explains how Rheinmetall handles the requirements of clear values, represents the readiness to change, and generates growth in sustainable business practices. Mobility and security are and remain basic human needs. Rheinmetall Automotive has been working on eco-friendly mobility solutions that do not come into conflict with environmental protection. Rheinmetall Defence's product portfolio is geared towards providing the best possible protection for soldiers on deployment.[61]

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[59] About Rheinmetall;
https://www.rheinmetall.com/en/rheinmetall_ag/group/about_rheinmetall/index.php
(downloaded 07 May 2022)

[60] Corporate Social Responsibility;
https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/index.ph
p (downloaded 07 May 2022)

[61] ESG Reporting 2021;
https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/csr_repor
t/index.php (downloaded 07 May 2022)

3.7.3. Compliance

Rheinmetall adheres to its strict Ethics and Compliance Rules when dealing with stakeholders, shareholders and the public. As a multi-technology group, it also pursues a risk-based approach concerning the Compliance Program for preventing corruption and bribery in its defence and security areas. It actively promotes an attitude of integrity amongst colleagues and stakeholders with its Compliance Organisation. The company tries to do businesses, which are in accordance with the applicable laws and with the rules of good corporate governance, corporate compliance and common industry standards.[62]

3.7.4. Corporate governance

Rheinmetall has traditionally been committed to a responsible, fair, reliable and transparent corporate policy, focused on expanding and utilising corporate potential, achieving medium-term financial targets and systematically increasing corporate value on a sustainable basis. By signing the principles of social responsibility in October 2018, the company stresses the importance of human and cultural diversity for cooperation, an integrative and respectful corporate culture and tolerant interaction.

Its risk management is characterised by the three lines of defence model: the management of the operating activities; the risk and compliance management; and the internal control system (audit). The risk inventory is revised once a year during corporate planning in order to identify, analyse and assess potential risks.[63]

3.7.5. Stakeholder

Rheinmetall seeks to be aware of the interests, requirements and expectations of its target groups and to be present where discussions are held, opinions formed and decisions made which affect the work and the future of the company.[64]

3.7.6. Employees

The employees identify with a distinctive corporate culture that focuses on trust, professional performance, initiative, self-responsibility, shared values and mutual understanding. They work together in partnership across functional, divisional and national boundaries.[65]

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[62] Compliance; https://www.rheinmetall.com/en/rheinmetall_ag/group/compliance/index.php (downloaded 07 May 2022)

[63] Corporate Governance; https://www.rheinmetall.com/en/rheinmetall_ag/group/corporategovernance_4/index.php (downloaded 07 May 2022)

[64] Stakeholder; https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/stakeholder_2/index.php (downloaded 07 May 2022)

[65] Employees; https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/mitarbeiter_3/index.php (downloaded 07 May 2022)

3.7.7. Ecology

The protection of natural resources is of fundamental importance for Rheinmetall. Careful use of raw materials and energy, and the prevention of damaging effects on the environment across all business processes help to improve the ecological results in the company. Employees are encouraged to act with environmental responsibility on all levels of the value-added chain. Modern, secure systems from certified manufacturing sites encourage resource-saving and low-emission production processes.[66]

The REACH regulation (Regulation EC No. 1907/2006) has since June 1, 2007 regulated the registration, evaluation, authorization and restriction of chemicals in the European Union. All Rheinmetall companies have set up internal processes to ensure that all REACH requirements are met during production and that only REACH-compliant products are supplied. The defence sector also includes Nitrochemie, a company that under the REACH regulation falls mainly into the role of a manufacturer of substances and formulator of mixtures. Nitrochemie submitted all registration dossiers on time and can continue to produce, import and distribute these substances within the European Union.[67]

3.7.8. Society

Rheinmetall has a long tradition of social commitments. It actively attends to its social responsibility while keeping track of its commercial goals. Social acceptance is an important requirement for economic success. It gets involved in sport and education as well as in providing direct support for local social projects and charitable organizations.[68]

Rheinmetall is an important partner of Hungary. This is the reason why I have chosen this company and why it is so important to be familiar with its sustainability policy that will be implemented in its plant built in our country. The company focuses on sustainability-related topics, and improves the related processes and structures in order to reduce energy, water and material consumption and to decrease the company's environmental stress.

Concerning the defence industry I can state that developed companies are more and more interested in sustainable production and good ESG performance in order to achieve better economic results. However, for the time being there is no straight correlation between a better sustainability policy and a higher economic performance. In the future civilian sustainability results and achievements may motivate defence industry companies to do similar military efforts.

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[66] Ecology;
https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/oekologie/index.php (downloaded 07 May 2022)
[67] REACH;
https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/oekologie/reach_2/index.php (downloaded 07 May 2022)
[68] Society;
https://www.rheinmetall.com/en/rheinmetall_ag/corporate_social_responsibility/gesellschaft_1/index.php (downloaded 07 May 2022)

4. Sustainable military technology

Sustainable defence industry is committed to manufacture sustainable products. It means that these goods (parts and components) moderately harm our natural environment and do not impose irreversible negative effects on the planet during their production. Military technology should also meet the requirements of sustainability if we want to use it wisely. In the long run, military equipment, armaments, weapons and ammunition should have limitations concerning their harmful impact on the environment.

In this chapter I am going to deal with Raw materials, Technology, Simulations, Fuels and energy, Recycling, Maintenance and Training in terms of sustainability with adding some examples from the defence industry companies analysed above.

4.1. Raw materials

Military technology production has an enormous responsibility in aiming to mitigate the effects of climate change on our natural environment. It consumes a huge amount of natural resources, water, oil, gas, metals, rare earth metals, semiconductors etcetera. These raw materials are accessible only in a limited amount on the Earth, therefore we should be mindful of their scarcity. Tanks, armoured military vehicles, artillery guns and howitzers, radars and electronic devices, fighter jets and helicopters, air defence weaponry systems contain valuable materials and they integrate the latest design and technological development reached in the last decades or years. A sustainable supply chain might be granted only with wisely selected and explored raw materials and energy resources.

4.2. Technology

During the 20th century military technology usually was at the forefront of inventions. Nowadays this statement is not true in all cases, nevertheless military technical development still plays an exceptional role. Sometimes we can find disruptive or ground-breaking military technologies that are replacing old or obsolete solutions in the armed forces and especially in the air and naval forces. Unmanned solutions (land, air and see) are becoming more and more popular thanks to their cost-effective and safe operation under a variety of circumstances.

Currently, Airbus aircraft emit 80% fewer CO_2 emissions per seat kilometre than they did 50 years ago. They are also 75% quieter. Aircraft producers invest in R&D to increase fuel efficiency and noise reduction. For example the A350 airplane is made of 53% lightweight composite material, and emits 25% fewer CO_2 emissions than the previous generation aircraft did. The latest A320 family offers 15% fuel-burn savings compared to current single-aisle aircraft operations and emits 20% fewer CO_2 emissions. The A220 also has the lowest noise level of any commercial jet in production.[69]

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[69] Environmental responsibility;
https://www.airbus.com/en/sustainability/environment/environmental-responsibility
(downloaded 07 May 2022)

According to the Chinese example, MA700, the new turboprop regional aircraft developed by AVIC, fully considers the requirements of green and environmental protection in design. The company plans that compared with similar aircraft models on the market, the cost for the direct use of MA700 will decline by 10%, while CO_2 emissions will decrease by 20% and nitrogen monoxide (NO) emissions by 30-50%. The aim is that MA700 gains more obviously competitive advantages for medium and short-range routes, becoming the global mainstream model of the next generation turboprop regional aircraft and the most highly-efficient and environmentally friendly transport machine.[70]

The AVIC CAMA Electronics Company designed and developed a clean, low-carbon, energy-saving DC charger product from the perspective of environmental protection. Compared with the traditional way of fuel supply, this product can save 8.1 million litres of diesel per month and reduce carbon emissions by 1,500 tons. CAMA Electronics is identified as the first supplier of electric bus charging equipment by Yutong Company. The overseas version of the DC charger developed by the company has passed the test and entered the European market, becoming the first Chinese charger to obtain the TÜV Rheinland CE certificate.[71]

4.3. Simulations

A simulation imitates the operation of real-world processes or systems with the use of models. The model represents the key behaviours and characteristics of the selected process or system while the simulation represents how the model evolves under different conditions over time.[72]

The current IT solutions make it possible to conduct trainings and practice with electronic devices, so-called simulators pretending the reality. This solution is firstly cost-effective and safe, secondly, it is useful and effective.

Pilot simulator programs are usually accepted as a real practice by aviation authorities, which is an enormous advantage. Pilots are able to exercise their flight operations without huge costs and security risks. That way air forces might complete one of the requirements of peace operations, namely the training should be as cheap as it might be or possible. Simulators can pretend emergency situations and fail-safe procedures in order to train and prepare pilots for unexpected events. Simulators are especially useful during various activities that are complex, complicated, expensive and dangerous.

4.4. Fuels and energy

Sustainable fuel, green fuel and biofuel help cut carbon emissions by using less fossil feedstock. With less CO_2 emission we can protect our environment, nature, altogether the Earth. It is a well-known fact that air vehicles are the biggest fuel

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[70] Social Responsibility Report 2017;
https://www.avic.com/upload/resources/file/2021/06/16/43979.pdf?PC=PC p. 45.
(downloaded 09 April 2022)
[71] Ibid. p. 45.
[72] What is simulation? What does it mean? (definition and examples); https://www.twi-global.com/technical-knowledge/faqs/faq-what-is-simulation (downloaded 12 June 2022)

consumers among many types of vehicles. Fighter jets or military transport planes use large amounts of kerosene, therefore consuming sustainable aviation fuel (SAF) can be a smart solution on the path to lowering the air traffic's carbon footprint. Transport fuel can be produced from household waste as well and SAF can be blended at up to 50% with traditional jet fuel.[73]

The current climate change is a motivational factor on the way to find acceptable solutions for sustainable fuel and green energy that are not so harmful to our nature and environment. Sustainable fuel means less CO_2 and decreased fossil emissions. Renewable energy resources secure the retention of natural resources for the future and for our descendants.

Airbus was the first manufacturer to offer customers the option of delivering a new aircraft that uses a blend of sustainable fuel. Multiple airline customers have benefited from this programme, developed in association with Air Total. Airbus is also involved in the Initiative towards Sustainable Kerosene for Aviation (ITAKA[74]) European program, which aims to speed up the commercialisation of sustainable aviation fuel (SAF) in Europe.

Research institutes and manufacturing companies are cooperating in developing alternative energy resources and propulsion systems. Among them electricity, hydrogen technology and solar energy are the most promising solutions.

4.5. Recycling

Recycling is also one of the most efficient and verifiable methods, which we can use to save our planet and the environment. Reusing and recycling waste materials mitigate the costs of storing unused materials and obsolete products and of manufacturing new products.

Within the next 20 years, more than 12,000 aircraft are expected to be retired from operations. If not properly recycled, these end-of-life aircraft will contribute to a lot of waste in our landfills. In 2005 Airbus was the first manufacturer to undertake a voluntary approach to aircraft decommissioning and aircraft recycling. Today Airbus and Tarmac Aerosave have established a proven method for decommissioning, dismantling and recycling the entire Airbus aircraft product range in an environmentally responsible way. It means that up to 90% of the aircraft is eligible for reuse or recycling. For non-recyclable parts, the company focuses on safe disposal. Since 2007, the project at Airbus has achieved the following results: 517 aircrafts stored, 117 aircrafts recycled, 92% of remaining parts reused and 100 engines recycled.[75]

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[73] What is sustainable aviation fuel (SAF)? https://www.bp.com/en/global/air-bp/news-and-views/views/what-is-sustainable-aviation-fuel-saf-and-why-is-it-important.html (downloaded 17 March 2022)

[74] Decarbonisation; Initiative Towards sustAinable Kerosene for Aviation (ITAKA) is an ICAO-sponsored and European Commission-funded research project that aims to speed up the commercialisation of fossil-free biofuels. https://www.airbus.com/es/node/2191 (downloaded 09 April 2022)

[75] Environmental responsibility; https://www.airbus.com/en/sustainability/environment/environmental-responsibility (downloaded 09 April 2022)

4.6. Maintenance

The lifetime of a product depends among other factors on the maintenance periods and methods. Every military technology should be maintained and overhauled according to its manual. The properly planned, prepared and fulfilled maintenance program protects the military technology, and increases its lifetime and reliability. In case stakeholders would like to secure the sustainability of a product they should decrease its impacts that are harmful for the environment.

Manufacturing companies usually run their own maintenance programs that help avoid unexpected consumer costs of an unscheduled repair of a military vehicle or weapon system by paying for the hourly use of the technology. Original Equipment Manufacturer's (OEM) product programs secure a reliable supply chain and help to avoid unserviceability, for example Aircraft on Ground (AOG) situation in case of an air vehicle.

Entering a new era in maintenance and aircraft technology, Airbus Services Company has developed and adapted state-of-the-art solutions throughout the aircraft life cycle, moving from unscheduled to planned maintenance by leveraging its digital capabilities. Airbus Flight Hour Services (FHS) and Satair have combined their strengths to offer a full range of material solutions to fit any maintenance strategy from spare part management to full turnkey maintenance solutions. Airbus FHS keeps customers' aircraft flying, and there is a comprehensive material and maintenance service package based on a contractual fixed hourly-rate payment. Solutions are available from the component supply, engineering and repair up to fleet technical management and full airframe maintenance, with guarantees on parts' availability up to Aircraft On-Time performance. This package provides part and expertise availability, quality reliability, worry-free turnkey solution and total budget control.[76]

4.7. Training

Training is the most important method in preparing for real-life military activity and its potential environment. Trained experts and operators might save a huge amount of money with their experience and precise work since they are able to avoid obsolete technical damages and environmental harms.

Lockheed Martin for example uses advanced technologies in order to increase training and sustainment effectiveness. The future of readiness is driven by augmented, virtual and mixed reality, distributed mission training, artificial intelligence and digital twins. Training is a customised tool and a system for unique needs. The design starts with an end goal in mind and the pace of learning is paved by connecting learning science and business models with advanced technology.[77]

Military technology is on the way towards sustainability that is inevitable. However, the question remains: How can a military product, equipment or weapon

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[76] Maintain – Ensuring safe efficient maintenance across the entire aircraft lifecycle; https://aircraft.airbus.com/en/services/maintain (downloaded 09 April 2022)

[77] How AI and Resilient Sustainment Will Help the Army Maintain Mission Readiness; https://www.lockheedmartin.com/en-us/capabilities/training-logistics-sustainment.html (downloaded 09 April 2022)

fulfil the requirements of combat readiness, serviceability, efficiency and sustainability at the same time. For the time being efficiency and reliability are more important aspects and requirements than the sustainability of the military technology. Despite this fact there are new programs in order to produce, operate and maintain military technology less harmful for the environment and the society.

5. Summary

The entire world is keen on speaking about sustainability and frugality, but nowadays sustainability is much more an attractive slogan and a part of the communication strategy than a coherent program. Recovery and regeneration need time, and overdriven consumption can easily cause damage and shortage or deficit of resources. Balance is the most important factor that a functioning system should retain and regain as it happens in the nature.

The defence industry has ambitious plans for sustainability, but armed forces as consumers are directly not interested in accepting and implementing global or regional environmental protection endeavours in the short-term. Defence industry companies usually have a civilian portfolio as well. It means that their productivity, business effectivity and competitiveness are partially dependent on their sustainability. Companies with strong environmental protection policy are preferred by stakeholders who are also committed to sustainability. It can be stated that in the future sustainability efforts might increase a company's competitiveness and productivity also in the defence industry.

Military technology production is an energy intensive process, so it should meet the environmental protection requirements as well. Not only the fabrication, but also the application of military equipment or weapon system should remain sustainable during its life-time. Regarding this, a product or vehicle maintenance program is an important factor as well, since this activity might save a plenty of time and energy. Maintenance, replacement, refurbishment and repair should follow the rules and requirements of making less waste and using less raw materials and energy for the sake of sustainability. The end of life cycle of a military technology is also an important stage, when recycling and reusing of the parts and components might crown the sustainability efforts. The sustainability criteria have not been accomplished yet, since they are continuously forming and gaining new sense and aspects. A sustainable military defence system should meet the current ESG requirements, parallel with other segments of the state administration and its objectives.

Despite my detailed analysis, the question (Is the sustainable military defence system a vision or a reality?) raised in the title of my work remains unanswered. In my opinion, the desired sustainability in the military defence system is a potential opportunity. However, there is a long road ahead in complying with sustainability requirements. Current security challenges (migration, pandemic, military aggression against Ukraine, economic crisis etc.), increasing defence expenditures and the need for smart management of available resources might accelerate the process, but there are a plenty of burdens and difficulties along this way.

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KIM MO RANG[1]

THE US-LED SPACE POLICY, BASED ON MULTILATERAL COOPERATION AND NORTHEAST ASIA'S FUTURE COOPERATION

Abstract

The purpose of this article is to 1) find out the intention of the US space policy, based on multilateral cooperation, and how the US space policy affects Northeast Asia (NEA), 2) analyze the possibilities and limitations of multilateral space cooperation in NEA, and 3) predict the NEA's future cooperation.

The US space policy, started with Space Surveillance in 1960, went through Space Situational Awareness, and evolved into Space Domain Awareness. In this process, the US realized that multilateral cooperation in various fields in space is vital, and it started building space policies accordingly. The US has perceived NEA as an ally and an object to keep in check. It is because of 1) a divided NEA by the US and China-led bilateral alliance and cooperation, 2) coexistent regions with allies, friendly, non-friendly, rival, hostile countries of the US, 3) substantial economic, technology capacity in space. Therefore, cooperation and checks with NEA are essential to establish the space order led by the US. In this situation, changing South Korea's position would play a key role in future multilateral cooperation in Northeast Asia.

Keywords: US Space Policy, Space Cooperation, Multilateral cooperation, SSA data-sharing agreement, SDA (Space Domain Awareness), STM (Space Traffic Management), IADC (Inter-Agency Space Debris Coordination Committee), Artemis Accords, Northeast Asia, South Korea

Introduction

As of January 2022, the country having the most satellites in space is the US. The number of satellites currently orbiting the earth launched by the US is 2,944. China is the second country to this effect, and the total number of Chinese satellites is 499. Russia has 169 satellites, and the rest of the world has 1,240 satellites. From this, it can be seen that the number of US satellite launches is overwhelmingly superior.[2] Therefore, the US has led space operations based on their experience and technology, accumulated through numerous challenges and failures. Thus, analyzing the US-centered past and current cooperation /activities in space would be more logical.

Chapter 1 explains why the United States understood that multilateral cooperation is essential in proceeding with space-related projects and why it established the US-led space order by analyzing the evolutionary process of SDA

(Space Domain Awareness) and STM (Space Traffic Management), from 1960 to the present. It shows that the US first perceived the space for military purposes. Later, as commercial use accelerated, the STM concept drew attention to building a Space Traffic Management for space debris and safe satellites' operation. Those evolutions naturally required multilateral cooperation in space, and the US recognized and emphasized it through the US space policies.

Chapter 2 shows that the absence of universally agreed SDA and STM definitions is considered as the biggest obstacle to the US space policy to introducing the ongoing US-led multilateral space cooperation. Through case studies of major countries by continent, major countries in all continents except NEA are participating in US-centered multilateral cooperation in space. Therefore, in this sense, the research shows why the NEA is different from others. Also, the research shows that different countries with different goals make the multilateral cooperation rather difficult.

Chapter 3 identifies the intentions of the US- space policy and predicted future cooperation in NEA by summarizing chapter 1 and 2. The article has also analyzed the Wolf Amendment aimed at NEA that can both economically and technically cooperate with the US or may threaten the US and emphasize the role of South Korea in NEA.

I.   Evolution of SS, SSA, SDA, and STM: past activities and cooperation

1.   The 1960s-1970s: Space Surveillance (SS) for military purposes

Compared to other countries, the United States relatively early began to develop the concept of Space Surveillance (SS) in the early 1960s. It was caused by Russian Sputnik 1 and 2, which were launched in 1957, and it served as a momentum for Space Surveillance to be used for military purposes. Under this situation, the US developed the Millstone Hill long-range tracking radar and Doppler radar to discover, track and identify artificial or natural space objects.[3]

From 1963 to 1982, it was only possible for the US expendable launch vehicles (ELV) manufacturers to produce vehicles by contracting with the National Aeronautics and Space Administration (NASA) or the United States Department of Defense (DOD).[4] As in the case of the 1960s, not only the US private companies but also foreign governments had to contract with NASA and DOD to launch payloads of communications satellites in the 1970s.

All this considered, it is difficult to avoid the conclusion that the US government mainly used Space Surveillance for military purposes by supervising private-sector/foreign government activities in space, in the 1960s.[5]

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[3]   STURDEVANT, Rick W.: From Satellite Tracking to Space Situational Awareness: The USAF and Space Surveillance, 1957-2007; Air Power History, 2007/4, pp. 7-8.

[4]   Federal Aviation Administration: Origins of the Commercial Space Industry; https://www.faa.gov/sites/faa.gov/files/about/history/milestones/Commercial_Space_Industry.pdf (downloaded 10 June 2022)

[5]   Ibid.

2. The 1980s: The beginning of the private sector and the Orbital Debris Mitigation concept

European Space Agency (ESA) considered offering launch services as a huge opportunity. So ESA created their own ELV, Ariane, in 1979, and this ESA's action was seen as a challenge for the US. As a result, then-president Ronald Reagan added fresh fuel to encouraging the private sector in space by issuing the National Security Decision Directive (NSDD) 42, National Space Policy, in 1982.[6] This is the beginning of how the private sector developed in space.

Since then, due to US policies encouraging the commercial activities in space, such as Executive Order 12465 in 1984 and the Presidential Directive on National Space Policy in 1989, accelerated the commercial activities in space,[7] the traffic jams and debris in earth orbit, which ought to be limited by humankind. Therefore, The US government introduced the concept of orbital debris mitigation to the world by announcing the United States Government Orbital Debris Mitigation Standard Practices, ODMSP, in 1988.[8] The ODMSP later became the basis of Space Traffic Management (STM).

3. The 1990s: The rise of the Space Situational Awareness (SSA) concept after the cold war

As the 1990s passed with the end of the Cold War, the attention began to expand beyond space surveillance to the concept of space situational awareness.[9] The definition of SSA and STM will be covered in more detail at the beginning of chapter

4. The 2000s and 2010s: International cooperation and awareness in SSA and STM based on interoperability

Since the success of SpaceX's Dragon, as the first uncrewed private spacecraft,[10] the private sector continued to increase the number of space objects, and the purpose of using space became more and more diversified and crowded. As a result, the United States, which has the largest number of satellites and is the location of the most space companies globally, needed a new SSA and STM management policy to preserve its national interests.[11] Therefore, in 2018, through the SPD-3 (Space Policy Directives), established a multilateral cooperation among existing/potential alliances in the SSA and STM.

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[6] Ibid.

[7] Ibid.

[8] GLEASON, Michael P.: Establishing space traffic management standards, guidelines and best practices, in First International Orbital Debris Conference, Sugar Land, Tx, 9-12 Dec 2019.

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[11] KIM (2020) op. cit. p. 80

SPD-3 Missions	Agencies						
	DOD	NASA	DOT	DOC	DOS	DNI	FCC
SSA,·STM, R&D	■	■	■	■	■		■
Mitigation of orbital debris	●	■	■	●	●	●	
Commercial use in SSA and·STM	●	●	●	■			
Offering SSA data and STM services	■	●	●	■	●	●	
SSA data sharing and improving its interoperability				■			
Promote STM standards and best practices	■		■	■			
Reduce unintentional RF interference			■	■			◎
STM and Space object registration					■		◎
Develop regulations for future orbital operations	■	●	■	■	●	●	

■: supervising agency; ●: cooperative agency; ◎: advisory agency

DOD (Department of Defense), NASA (National Aeronautics and Space Administration), DOT (Department of Transportation), DOC (Department of Commerce), DOS (Department of State), DNI (Director of National Intelligence), FCC (Federal Communications Commission)

Table 1. US departments on STM mission followed by SPD-3[12]

As noted earlier, Space Surveillance was started in the 1960s for military purposes. However, as shown in Table 1 above, in the 2010s, the DOC is taking more leading roles in the STM missions than the DOD. DOC took seven supervising roles and one cooperative role among nine SPD-3 missions. That is to say, DOC is participating in all missions except for one mission. However, the DOD is leading four missions as a supervising agency and supporting two missions as a cooperative agency. In addition, DOD is not involved in three missions in STM. Thus, it seems reasonable to conclude that the US recognized the functions of SSA and STM for commercial rather than military purposes.

In common with STM, the authority 'transition' also can be found in SSA. The authority of SSA data was the Joint Space Operations Center (JSpOC) until 2018; later, the Combined Space Operations Center (CSpOC) took over the responsibilities. This shift was necessary, in order to "improve coordination between the US, its allies, and commercial and civil partners for defensive space efforts. It will enhance individual and collective space capabilities in order to expand the overall multi-

domain military effectiveness."[13] Additionally, then-Air Force General Jay Raymond stated that "No one nation can do this alone."[14] Here 'this' that he pointed out means missions of CSpOC, which are: 1) missile warning; 2) positioning, navigation, and timing (PNT); 3) optimization and restoration of military satellite communications; 4) theater battlespace awareness using overhead persistent infrared; 5) environmental monitoring; 6) theater support fires; 7) defensive space situational awareness and space defense.

Proceeding from what has been said above, it should be concluded that the US has confidence that international cooperation and awareness in SSA and STM based on interoperability is vital.

5. Since 2019, Space Domain Awareness (SDA), The extended concept with Defense purposes in the military field

Since considering the space domain as a warfighting domain like land, sea, air, and cyberspace, US Space Command (USSPACECOM) was officially reestablished in August 2019. Additionally, USSPACECOM created two subordinate commands: 1) Combined Force Space Component Command (CFSCC) and 2) Joint Task Force Space Defense (JTF-SD).[15]

In October 2019, Maj. Gen. John Shaw, then-Deputy Commander of Air Force Space Command (AFSPC), introduced a new term, "Space Domain Awareness" (SDA), to alternate and to expand the existing concept, "Space Situational Awareness" (SSA). Moreover, according to SpaceNews, AFSPC adopted the SDA concept and definition and used the SDA term in all future documents by replacing SSA.[16]

The following year, in 2020, the United States Space Force USSF published its capstone doctrine, "Spacepower, Doctrine for Space Forces." According to this document, USSF recognizes space as a unique physical domain. It reflects how humans use space; therefore, USSF deemed physical, cognitive, and network dimensions should be considered to access, exploit, and defend space. Because space is physically close to the air domain, it is also connected with all domains such as land, sea, air, cyber, et cetera.[17]

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[13] US Strategic Command: Combined Space Operations Center established at Vandenburg AFB; July 19, 2018, https://www.stratcom.mil/Media/News/News-Article-View/Article/1579497/combined-space-operations-center-established-at-vandenberg-afb/ (downloaded 10 June 2022)

[14] Ibid.

[15] HITCHENS, Theresa: Raymond's First SPACECOM Move: Two New Subcommands and Their Leaders; Breaking Defense, Retrieved 8 September 2019, https://breakingdefense.com/2019/08/raymonds-first-spacecom-move-two-new-subcommands-and-their-leaders/ (downloaded 10 June 2022)

[16] SHAW op. cit.

[17] U.S. SPACE FORCE: Space Capstone Publication SPACEPOWER Doctrine for Space Force; 2020, https://www.spaceforce.mil/Portals/1/Space%20Capstone%20Publication_10%20Aug%202020.pdf (downloaded 10 June 2022)

Table 2 represents the most significant difference between SSA and SDA, and shows how to perceive space and act on it. It appears likely to us that SSA has a more 'passive' definition than SDA by mentioning verbs and words such as 'support,' 'avoid,' 'detect,' and 'track.' On the contrary, SDA certainly has an active definition which is shown by vocabularies such as 'execute,' 'provide,' 'synthesize,' and 'fuse.' Notably, when space is defined as 'warfighting domain' by AFSPC, it is challenging to avoid active definition.

	SSA	**SDA**
How	• identify • characterize • understand	• integrate • must be predictive and current
What	Any factor, passive or active, associated with the space domain that could affect space operations	• SSA-based metric observations • intelligence • environmental monitoring
Why	• to support the safety of flight • to avoid collision	• to execute "space battle management" in support of military plans and operations • to provide operators and decision-makers with a timely depiction of all factors and actors
Act	• detecting, tracking, and identifying all artificial objects in Earth orbit • catalog maintenance	• collecting, synthesizing, fusing, and making sense of vast volumes of data from all sources
Where	Earth-to-space	Warfighting domain (air, sea, or land)
When	SS since the 1960s, SSA since the 1990s	Since 2019

Table 2. Comparison of SSA and SDA[18]

SDA is showing that multinational alliances and cooperation based on interoperability with existing or potential alliances for defense purposes in the military field are quite feasible. Thus, the US and their alliance started cooperating internationally with a similar concept. It remains to be seen in part 1 of chapter II.

II. Current ongoing activities and cooperation led by the US

Before entering chapter II, it should be noted that although SDA replaced and extended the terminology and the role of SSA, SSA terminology is still used by the US regarding SSA data-sharing agreement. So this paper will use both terms to distinguish each role.

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[18] HITCHENS op. cit., SHAW op. cit., Space Capstone Publication SPACEPOWER Doctrine for Space Force;
KIRBY James Maj. US Army: From SSA to space recon: Setting the conditions to prevail in astrodynamic combat; The Space Review, August 31, 2020, https://www.thespacereview.com/article/4013/1 (downloaded 10 June 2022) – resource: multiple, created by the author.

As seen in the previous chapter, the importance of space policy and the role of SDA and STM has rapidly accelerated, since the Trump administration through the SPD-3. It is quite a short period to build a concrete cooperation plan. Because all the definitions of SSA and STM are different by countries, organizations, and agencies. In other words, all countries have been developing space policy in SDA and STM by pursuing their national interests, with intentions under their own unique political, economic, and geographical situations. In this sense, Table 3 clearly presents that there is "no a transnationally agreed definition" in SSA and STM. Also, table 4, which was created based on "Global Trends in Space Situational Awareness (SSA) and Space Traffic Management (STM)," categorized various priorities by significant countries.[19] Namely, various national priorities and intentions envision cooperation with different meanings, making the concrete cooperation difficult.

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[19]　LAL, Bhavya et al.: Global Trends in Space Situational Awareness (SSA) and Space Traffic Management (STM); Science&Technology Policy Institute, April 2018, i–iii, https://www.ida.org/research-and-publications/publications/all/g/gl/global-trends-in-space-situational-awareness-ssa-and-space-traffic-management-stm (downloaded 10 June 2022)

		SF	ES	US	SW	AS	JP	NA	ES	SAIC	IAA	UN CO
Elements	NEOs	SSA	SSA	SSA	SSA	SSA			SSA			
	Space weather		SSA	SSA	SSA	SSA					STM	STM
	Manned assets on orbit/objects	SSA	SSA	SSA	SSA	SSA			SSA		STM	STM
	RFI			SSA							STM	STM
	Space Environment			SSA	SSA		SSA	SSA	SSA			
	Operations				SSA		SSA	SSA		STM	STM	STM
	Risks/threats/ Events	SSA			SSA	SSA	SSA	SSA	SSA	SSA		
	Technical provisions			SSA						STM	STM	STM
	Policy									STM		
	Regulatory provisions										STM	STM
	Rules										STM	
	Safety			SSA	SSA					SSA STM	STM	STM
	Hazard			SSA						SSA		
	Efficiency			SSA	SSA							
	Security	SSA		SSA	SSA							STM
	Sustainability			SSA	SSA							
	Physical interference/ collision	SSA		SSA							STM	STM
Activity	Technical tracking		SSA	SSA					SSA			
	Surveilling		SSA	SSA								
	Understanding	SSA		SSA								
	Predicting	SSA		SSA						SSA		
	Monitoring		SSA	SSA					SSA			
	Detecting		SSA	SSA					SSA			
	Knowing		SSA	SSA		SSA	SSA	SSA	SSA			
	Characterizing/ Identifying	SSA		SSA	SSA				SSA			
	Cataloging			SSA					SSA			
	Deterring									SSA		
	Cooperating			SSA	SSA							
	Characterizing	SSA		SSA	SSA							
	Implementing											STM
	Decision making											
	Maneuvering											

SF, Space Foundation; USSTRATCOM, United States Strategic Command; SWF, Secure World Foundation; ASA, Australian Space Academy; JP 3-14, Joint Publication (3-14); ESPI, European Space Policy Institute; SAIC, Science Applications International Corporation; IAA, International Academy of Astronautics; UN COPUOS, UN Committee on Peaceful Uses of Outer Space

***Table 3. Categorized definition by STPI (IDA Science and Technology Policy Institute)*[20]**

[20]   Ibid.

Country	Priority	Intentions
Poland/South Korea	technical capabilities	• to allow for more data-sharing opportunities with other friendly space powers • to contribute to international collaborations, using their strategic locations and capabilities as tools for cooperation in space and on SSA
Germany	technical prowess	• to better contribute, no longer interested in being a junior partner in the US SSA enterprise
Canada / Australia	interoperability	• to improve their relationships with the United States • to contribute to the global SSA regime, specifically in support of the US
Japan	creating own system	• to strengthen SSA capabilities by improving existing partnerships and collaborating with other friendly nations
China	providing collision warning services	• to grow their leadership in the domain by fostering China-led international collaborations

Table 4. Priority and intention in SSA by significant countries[21]

Although concrete multinational cooperation is difficult in SSA, SDA and STM, due to the absence of a transnational agreed definition, there are still ongoing multinational activities and cooperation. The following section will cover three representative activities and cooperation in SSA, SDA and STM, at the international level.

1. SSA data-sharing agreements: beyond bilateral cooperation in space?

As of 2020, twenty-five countries joined the SSA data-sharing and safety of the spaceflight network. Including the US, these countries are Australia, Belgium, Brazil, Canada, Chile, Denmark, Finland, France, Germany, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Peru, Poland, Republic of Korea, Romania, Spain, Thailand, United Arab Emirates, and the United Kingdom.[22] In addition, U.S. Space Command and the Libre Space Foundation (LSF), a non-profit, signed the 100th Commercial Space Situational Awareness Data Sharing Agreement to initiate the two-way flow of SSA services and information in July 2021.[23]

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[21] Ibid. – resource: multiple, created by the author

[22] ERWIN, Sandra: U.S. Space Command signs space data sharing agreement with Peru; Spacenews, May 20, 2020, https://spacenews.com/u-s-space-command-signs-space-data-sharing-agreement-with-peru/ (downloaded 13 January 2022)

[23] U.S. Space Command Public Affairs Office: USSPACECOM signs 100th commercial agreement to share space data, service; U.S. SPACE COMMAND, July 1, 2021, https://www.spacecom.mil/Newsroom/News/Article-Display/Article/2680576/usspacecom-signs-100th-commercial-agreement-to-share-space-data-service/ (downloaded 13 January 2022)

Under the congested and contested space situation, the SSA data-sharing agreement contributes to multinational space cooperation and collective interest and provides vital services and information for national, military, civil, scientific, and economic fields. Moreover, according to the USSPACECOM, it helps to streamline the process for partners to request specific information, which is: 1) crucial for launch support, 2) satellite maneuver planning, 3) support for on-orbit anomalies, 3) electromagnetic interference reporting and investigation, 4) satellite decommissioning activities and on-orbit conjunction assessments.[24]

Case Study Question	Northeast Asia				Asia Pacific
	Japan	**S. Korea**	**China**	**Russia**	**Australia**
Primary motivation	National security	National security	National security	National security and/or to protect space assets	International collaboration
Role of military in SSA	Gaining more lead responsibilities	Supporting but evolving	Operations lead	Operations lead	Operations lead
Data sharing agreement with US DoD	O	O	None	None	O
Current global/regional partnerships/forum	APRSAF, IADC	APRSAF, IADC	APRSAF, APOSOS, APSCO, IADC	APRSAF, ISON	APRSAF, ISON

Table 5. Case Study of SSA in Asia (2022)[25]

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24 Ibid., edited, added and updated information by Mo Rang KIM
25 Ibid., edited, added and updated information by Mo Rang KIM

Case Study Question	Europe					
	UK	Spain	Poland	Germany	France	Italy
Primary motivation	National security and/or to protect space assets	International collaboration	International collaboration	National security and/or to protect space assets	Protect space assets and territory	International collaboration
Role of military in SSA	Operations lead	Unknown	Evolving, but likely lead	Operations lead	Lead	Lead
Data sharing agreement with US DoD	O	O	O	O	O	O
Current Global/ regional partnerships/forum	APRSAF, ESA SSA, EU SST, IADC	ESA SSA, EU SST, ISON, IADC	ESA SSA, Pursuing membership in EU SST, IADC	APRSAF, ESA SSA, EU SST, IADC	APRSAF, ESA SSA, EU SST, IADC	APRSAF, ESA SSA, EU SST, ISON, IADC

Table 6. Case Study of SSA in Europe (2022)[26]

	South America		Africa	North America
Case Study Question	Brazil	Chile	South Africa	Canada
Primary motivation	Protect space assets	Protect space assets	Protect territory	Protect space assets
Role of military in SSA	Operations lead	Unknown	Unknown	Operations lead
Data sharing agreement with US DoD	O	O	None	O
Current Global/ regional partnerships/Forum	ISON	N/A	ISON	IADC

Table 7. Case Study of SSA at the rest of the continents (2022)[27]

Table 6 and 7 prove that multinational cooperation in space is possible 'beyond regionalism' through SSA data-sharing agreement. Although Tables 6, 7 and 8 show that major countries in each continent have different primary motivations for the military's role in SSA, most major countries signed on to SSA data-sharing since they recognized that SSA data sharing is intimately linked with their national, military, civil, scientific, and economic areas.

Before examining table 6, it is necessary to explain why this paper categorized Russia in Northeast Asia (NEA). Since regions can be defined by not only 'geographical features' but also by 'the product of political construction.' Namely,

26 Ibid., edited, added and updated information by Mo Rang KIM
27 Ibid., edited, added and updated information by Mo Rang KIM

political creation decides what country belongs to a region.[28] In this sense, currently and historically, Russia has a critical geopolitical role in the NEA region.

Table 6 clearly distinguishes Northeast Asia and the rest of the continent. Except for South Africa, China and Russia are almost the only countries that do not sign SSA data-sharing agreements among each continent's major countries. It presents how NEA countries are split and how this division has made a full regional cooperation difficult. After the Korean War, NEA was traditionally divided into two poles, the US and Russia. It is currently more reasonable to view two poles as the US and China. The US, South Korea, and Japan have practically built bilateral allies and cooperation. In the same way, Russia, North Korea, and China also constructed economic and military cooperation and alliances. These two groups are poles apart in understanding international/domestic affairs, due to their ideological and political systems.

Instead of signing the US-led SSA data-sharing agreement, China established the Asia-Pacific Space Cooperation Organization (APSCO) in 2008, and the Asia-Pacific Optical Satellite Observation System (APOSOS), based on members of APSCO. Also, Russia created the International Scientific Optical Network (ISON) and became a member of the Japan-led Asia-Pacific Regional Space Agency Forum (APRSAF). Namely, China and Russia built their own leading cooperative frameworks and have not become member countries for each other, instead of cooperating with the US multinational cooperation framework. However, most major countries are cooperating multilaterally.

2. Inter-Agency Space Debris Coordination Committee (IADC): information exchanges with the existing alliances of the US

The Inter-Agency Space Debris Coordination Committee (IADC) contributed to mitigating the quantity of debris in space and improving the STM environment. According to IADC, "IADC is an international forum of space agencies, authorized governmental or inter-governmental entities for the coordination of activities related to the issues of human-made and natural debris in space." Member countries can review and identify mitigating space debris by cooperating through information exchanges among member space agencies.[29]

Through consensus among members, IADC published Space Debris Mitigation Guidelines in 2021. Cost-effectiveness is stressed since the debris can be minimized and eliminated by the process of planning and designing spacecraft or launching vehicles.

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[28] KIM, Mo Rang: The role of the US-ROK alliance in the NATO-ROK global partnership; Military reflections, Academy of the Armed Forces of General Milan Rastislav Štefánik, Liptovský Mikuláš, 2021/3, ISSN: 1336-9202, https://doi.org/10.52651/vr.a.2021.3.18-31 (downloaded 10 June 2022)
HEMMER, Christopher – KATZENSTEIN, Peter J.: Why Is There No NATO in Asia? Collective Identity, Regionalism, and the Origins of Multilateralism; International Organization, 2002/3. pp. 575-607. DOI: https://doi.org/10.1162/002081802760199890 (downloaded 10 June 2022)
[29] Inter-Agency Space Debris Coordination Committee; 2021 IADC Space Debris Mitigation Guidelines, IADC-02-01 Rev. 3 June 2021. p. 4.

IADC's Members are thirteen space agencies from Canada (CSA), China (CNSA), European Space Agency (ESA), France (CNES), Germany (DLR), India (ISRO), Italy (ASI), Japan (JAXA), Korea (KARI), Russia (ROSCOSMOS), Ukraine (SSAU), the United States (NASA), and United Kingdom (UKSA).[30] In addition, eighteen ESA member states should be counted, excluding space agencies from ESA countries already noted above. Almost all member countries are existing alliances of the US, and China and Russia are also members of the IADC.

3.   *Artemis Accords: As the Role of International Customary Law*

After the canceled Constellation program, the Trump administration revived the Artemis program through SPD-1 to make another human-crewed landing on the Moon by 2024. Additionally, current US president Joe Biden announced his full support to the Artemis Program to land a man and the first woman on the Moon by 2024.[31]

Like SSA data-sharing agreements and IADC, most parties are US alliances. As of June 20 2022, countries, including the US, signed on the Artemisi Accords, with the participation of Australia, Bahrain, Brazil, Canada, Colombia, France, Israel, Italy, Japan, South Korea, Luxembourg, Mexico, New Zealand, Poland, Romania, Singapore, Ukraine, United Arab Emirates, United Kingdom, and the United States[32]. In October 2020, only eight countries signed on the Artemis accords, which increased to 19 the countries within one year and eight months.

However, the US prohibits 'participating and collaborating bilaterally with China or Chinese-owned companies', according to the Wolf Amendment, which the US Congress passed in 2011. Thus the Artemis Accords, 'a series of bilateral agreements' with partner nations, make U.S.-China cooperation in space more impossible. Also, Russia did not sign the accords, but criticized that it is too American-centered and commercial interested. For this reason, Russia and China built an International Lunar Research Station,[33] and China National Space Administration (CNSA), and Russia's Roscosmos entered the partnerships.[34]

The Artemis Accords have the role in international customary law, since countries must sign the Artemis accords to participate in the program. Although international customary law is not an international law, it is hard to escape the conclusion that the international customary law could obtain the status of international law when it becomes standard and globally accepted over time.[35]

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[30] Ibid.

[31] RINCON, Paul, Artemis: Biden administration backs US Moon shot; BBC, 5. February 2021. https://www.bbc.com/news/science-environment-55949250 (downloaded 10 June 2022)

[32] The Artemis Accords; https://www.nasa.gov/specials/artemis-accords/index.html (downloaded 10 June 2022)

[33] BOLEY, Aaron – BYERS, Michael: U.S. policy puts the safe development of space at risk; Science, 2020. Vol 370, Issue 6513, DOI: 10.1126/science.abd3402

[34] RAJESWARI, Pillai Rajagopalan: The Artemis Accords and Global Lunar Governance; The Diplomat, 7 June 2021, https://thediplomat.com/2021/06/the-artemis-accords-and-global-lunar-governance/ (downloaded 10 June 2022)

[35] STARLING Clementine G. – MASSA Mark J. et al.: The Future of Security in Space: A Thirty-Year US Strategy; Atlantic Council Strategy Paper Series, 2021.

III. Conclusion: Future outlook of multilateral Cooperation in Asia

Proceeding from what has been said above, it is apparent that the US admitted the limitation in operating only at national level in space. Therefore, the US space policy and strategy have constantly emphasized the role of multilateral cooperation and alliances, through the evolution from SS to SDA and STM. Also, recently, not only the US, but also space-faring countries recognized that multinational cooperation and alliances in space are essential, since it is virtually impossible for a single country to respond to all problems alone. Seen from this point of view, countries or regions that could not reach multilateral cooperation on the earth are highly likely to reach multilateral cooperation, within the unique space environment.

Northeast Asia, separated by the US and China (or Russia) and never achieved multilateral cooperation within the NEA region, can be a plausible explanation of the hypothesis above. There is no choice but to admit that NEA has certain limits to stabilizing regional security with bilateral cooperation led by the US and China. Therefore, the necessity of multilateral cooperation has been emerging also in NEA. Simultaneously, the US recognized that NEA countries are essential for the US space policy and strategy, since NEA possesses the economic power and technology to participate in current and future space activities, as Table 8 shows.

	by country	2021 (billion USD)
1	US	54.59
2	China	10.29
3	France	3.95
4	Russia	3.57
5	Japan	4.21
6	Germany	2.38
7	India	1.96
8	Italy	1.48
9	United Kingdom	1.46
10	South Korea	0.68

Table 8. Government Expenditure on Space Programs in 2021[36]

As seen above, 5 out of 6 NEA countries (including the US) ranked in the top 10 government expenditures on Space Programs in 2021. Furthermore, NEA is a dynamic area where allies, friendly, non-friendly, hostile, and rival countries of the United States coexist. Thus, the US formulated the space policy considering the unique situation of NEA. For example, the US-led SSA sharing data, SDA, STM, IADC, and the Artemis Accords have demanded multilateral cooperation for not only

https://www.atlanticcouncil.org/content-series/atlantic-council-strategy-paper-series/the-future-of-security-in-space/ (downloaded 10 June 2022)

PERSHING, Abigail D.: Interpreting the Outer Space Treaty's Non-Appropriation Principle: Customary International Law from 1967 to Today; Yale Journal of International Law 44, 1, Winter 2019, pp. 149-178.

[36] Statista: Government expenditure on space programs in 2020 and 2021, by major country; https://www.statista.com/statistics/745717/global-governmental-spending-on-space-programs-leading-countries/ (downloaded 10 June 2022)

NEA, but also the international community; however, at the same time, the US prohibited bilateral cooperation with China or Chinese-owned companies through the Wolf Amendment.

Therefore, there is somewhat the likelihood that the US-led space policy, based on multilateral cooperation, will become 'an inflection point' for Northeast Asia's future cooperation. Indeed, China and Russia created their own cooperative framework and attempted to bring potential alliances against the Wolf Amendment of the US. Thus, one could logically assume that the NEA region could not go beyond regionalism entirely, and has been still influenced by two split poles, the US and China have existed so far.

	Japan	South Korea	North Korea	China	Russia
SSA data-sharing agreements	O	O	X	X	X
IADC	O	O	X	O	O
Artemis Program	O	O	X	X	X

Table 9. Northeast Asia's Current Status of Participation in US-led Multilateral Cooperation[37]

However, attention should be paid to the case of South Korea. Unlike Japan, South Korea has taken an ambiguous position about joining the US-led security consultative body such as the Quad (Quadrilateral Security Dialogue) or multilateral cooperation, due to China's pushback. Japan has traditionally been a loyal ally of the US since Japan's unconditional surrender during World War II.

However, as shown in Table 9, currently, South Korea joined all kinds of major multilateral cooperation led by the US. In particular, signing the Artemis Agreement, which has a character of international customary law, can be interpreted that South Korea supports a new space order created by the US. It seems reasonable to assume that the future outlook of NEA multilateral cooperation to be drawn here is that for the countries – with sufficient scientific, technological, and economic power – it is virtually impossible to follow the space order led by Russia or China against the US, especially in the middle of the ongoing Russia-Ukraine war. Table 8 shows why the space order led by Russia and China is scarcely possible. According to Government Expenditure on Space Programs in 2021, the U.S. was given the first rank, and the combined numbers from 2nd to 10th account for just over half of the total US spending. Thus, it is quite logical that constructing the Chinese or Russian-centered space order by multilateral cooperation is almost impossible in the meantime, due to sanctions resulting from the Russia Ukraine war.

Although Russia and China did not participate in the multilateral cooperation led by the US, it does not mean that a multilateral cooperation is unnecessary in NEA.

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[37] ERWIN op. cit., Inter-Agency Space Debris Coordination Committee, op. cit. p. 4., The Artemis Accords op. cit. – resource: multiple, created by the author

Paradoxically, International Lunar Research Station, built by China and Russia, proves how essential multilateral cooperation is in space.

This discussion concludes that the US-led space policy based on multilateral cooperation will be strengthened and will take the short and midterm lead. Simultaneously, Russia and China will try to establish their own multilateral cooperation against the US and its allies. In this sense, Korea's current and changing position can predict the NEA's future cooperation.

However, there are still two main limitations to achieving multilateral cooperation in space with SSA, SDA, and STM. 1) The absence of a universally agreed-on definition of SSA, SDA, and STM, 2) The absence of mutual trust among countries, with various national priorities and intentions in using SSA, SDA, and STM. I would like to close the discussion by pointing out that there is an increasing awareness of these limitations, but the research is not yet sufficiently studied, and still a considerable work needs to be done.

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WU YUE[1] – RUDOLF NAGY[2]

THE INDUSTRIAL SAFETY OF FOOD PROCESSING IN LIGHT OF OPERATIONAL RISKS REDUCTION ASPECTS

Abstract

Our planet will feed more than 9 billion people in 2050, based on prediction analysis. In the meantime, we are facing severe challenges posed by the limited natural resources and the climate change, and even by the shock of COVID-19 and the war between Russia and Ukraine. How can we be able to feed the present generation and the future generations? A lot of scientists and scholars studied the possibility of sustainable agriculture and food – at the primary level of food production – to maximize the food supply. From the food supply chain, we can see that the next important step is the industrial processing. Based on the secondary research review methodology and content analysis, we tried to understand the importance of industrial safety at the food processing level and the operational risks. In the end, we found that, in addition to the possible food supply sustainability during the first step of food supply chain (food producing on farms), a suitable food industrial processing can also reduce food waste, save energy and natural resources, and can alleviate environmental burdens. On the other hand, the risk assessment and the increase of food industrial safety are of great importance in improving food and agriculture sustainability.

Keywords: industrial safety; supply chain; production; occupational safety and health; processing

1. Introduction

Since we walk into the industrial age, industrialization and the complexity of industrial activities can threaten us with occupational safety risks, in terms of industrial hazards and accidents. Industrial safety has been highlighted by many researchers and scholars. As regards the industrial accidents and safety issues, the large and heavy industries, which have high requirements for human factors, are more vulnerable, such as mining, steel production, power generation, railway construction, etc. Food production is not an exception either.[3]

Military action against threats to world trade routes

Industrial production cannot, of course, be independent of the effects of the trade in the goods it produces. This is particularly true for the geographical displacement of production capacities, which are becoming increasingly concentrated, and for markets, which are becoming increasingly distant. The efficiency required in this area in reaching the world's distant lands necessarily takes the form of merchant ships

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[1]   ORCID: 0000-0003-0349-5654
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[3]   ELAHI, N.: Industrial Safety Management; Gyan Publishing House, 2006.

capable of long sea voyages and large quantities of goods. The oceanic routes are geographically extensive, but they also leave the fleet units operating on them almost completely exposed to several dangers. In the vicinity of the world's conflict zones, this makes cargo ships and their crews particularly vulnerable. A striking example of this is the piracy attacks on shipping units sailing in and out of the Gulf of Aden off the coast of Somalia, which have become increasingly serious and have required the deployment of international naval units to ensure trade disruption. Piracy off the coast of Somalia alone causes between $1 billion and $16 billion in financial losses to the shipping industry annually.[4]

Initially, US-led multinational, typically NATO-allied, shipping units serving here were tasked with ensuring uninterrupted passage for international shipping, carrying out at the port their continuous patrols. They also provided escorts for humanitarian aid convoys.[5]

Other non-NATO allies, including India and China, which also attach great importance to the smooth flow of their own trade, have now joined the mission. The latter has recently added the Suzhou missile destroyer and the Nantong frigate to the fleet.

The global context of food trade supply chains

The political and economic realignments that are taking place in today's globalized world may not only bring significant changes into the security challenges of traditional military-political confrontation. Taking COVID-19 as an example, as large-scale maritime transport moves closer to its origins and destinations, the number of transshipment points is increasing, where, among other things, the concentrated dimensions of large-scale, high-capacity transport with optimum transport security are giving way to smaller-capacity elements of supply chains. The volume of foodstuffs moving along the routes from here is certainly inferior to that of large, strategic trade operations. Therefore, the infrastructure of economic centers that are significantly more exposed to security challenges are, by their global dimension, vital for all the trade networks that integrate them into their supply chains.

Priority economic zones must therefore be given global attention, not only in terms of identifying and preventing as well as managing potential threats to transport security, but also in terms of the strategic supplies that flow through them, given the expansion of their transport activities. This was illustrated by the period of pandemic COVID-19, when the supply of commodities to the Far East was disrupted by closures and intermittent disruptions in supply chains. Modern production, based on continuous supply, has made it impossible to maintain production volumes at previous levels for long periods of time, due to logistics stocks with only minimal reserves. In addition, companies that had relocated a large part of their production capacity to Asia and often to China had to suffer production losses, due to the zero COVID practice in China to combat the epidemic. This has been compounded by the difficulties in

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[4]   HALLWOOD C. P. – MICELI T. J.: Maritime Piracy and Its Control: An Economic Analysis; Palgrave Macmillan, 2015, ISBN: 9781137461506, p. 5.

[5]   GEIß R. – PETRIG A.: Piracy and Armed Robbery at Sea: The Legal Framework for Counter-Piracy Operations in Somalia and the Gulf of Aden; Oxford University Press, 2011, ISBN: 9780199609529

operating transcontinental freight transport, which has also been hampered and, despite the end of the epidemic, has not yet fully recovered.

The protracted Russian-Ukrainian war in our neighborhoods has also had serious repercussions on the international economy. Although the economic performance of both countries involved in the conflict had previously been described by analysts in extremely disparaging terms, it is now clear that this region is a key factor in the world's raw material production, and is also a vital source of food commodities. It may come as a surprise to the layman that Russia, previously rightly considered to be extremely underdeveloped in this area, has also become so valued. However, it was not necessarily obvious to those who have not really followed the economic developments there. Thanks to a very strong state economic stimulus policy that has been in place for some time, Russia has not only become self-sufficient, but has also developed into the world's largest grain exporter, exploiting the potential of its natural resources. As a result, it has not only grown up to the production level of Ukraine, historically the breadbasket of Europe, but has far surpassed it. Among other things, it can be called a primary grain supply partner for many regions of the world. At the same time, it has also become a world leader in the production of fertilizers, needed to ensure high yields. In addition, producers have unlimited access to the natural gas production, necessary to produce it, which is not the case for EU fertilizer producers, for example, who have been hit hard by the increased raw material prices resulting from the EU's sanctions policy, for financial reasons. Understandably, many of them have stopped production. This means renewed vulnerability for the profitability of farmers. Some analysts are already predicting that the era of cheap raw materials is over and that future food production is likely to be affected by the recession.

All this foreshadows food supply disruptions in the longer term. And this will obviously already threaten not only the security of supply in third world countries, but will also increase food insecurity in developing countries. Citizens of the leading economies of the West are facing commodity shortages day after day, and not only because of disruptions in supply chains caused by the COVID-19 pandemic.

This is also because a country like India, which is becoming a great power not only in technology but also in agriculture, cannot help the food-deficit world to overcome the shortage of supply on world market. Although it could easily help the world by mass production, like other agricultural products, the pace at which grain stocks are accumulated and exported requires foresight, at least over a period of a year. It makes sense that changes in the weather conditions, during the growing season of the present crops should anticipate the yields that can be achieved in the harvest period. However, rainfall deficits are forecast to threaten drastically the prospects for next year's domestic reserve formation. For these reasons, the world's second most populous country is currently taking timely export restriction measures to ensure security of supply for its population, similar to some of the crisis management measures taken by the Hungarian government.

Unfortunately, in the case of Ukraine, it is not the weather, but the war, which has directly affected a large part of the production area and made it impossible to carry out agricultural work, that is preventing normal yields from being achieved this year. Experts estimate that the harvest in Ukraine this year could be more than 50 percent lower than in the past. This, according to Russians, could jeopardize next year's supply in Ukraine, which they claim will be exacerbated by the particularly dynamic exports

of last year's existing grain reserves in recent weeks. The mining of Black Sea ports, considered a critical entry point for Ukrainian grain exports, as part of invasion defenses, means that the only way to maintain supply chains for westbound grain supplies is currently to involve the logistics systems of neighboring states. The utilization of transit routes to ports has increased dramatically in recent times. However, the continued transport of some 20 million tons of Ukrainian grain stocks will continue to place a significant strain on the traffic of the ports concerned for a long time to come.

Possible spill-over effects of the food crisis

However, in the shadow of the current global economic performance, which is tending towards a recession, there are growing signs that the situation is unsustainable. This can be seen, for example, in Henry Kissinger's speech at the World Economic Forum in Davos, where he called for a Russian-Ukrainian settlement, even at the cost of territorial concessions by Ukraine, which understandably provoked strong protests from the Ukrainian side. However, recent reports from the theatre of war, which have been unfavorable to the Ukrainian side, and the increasing frequency of calls for the resumption of negotiations may indicate a move in this direction. This is all the more a matter of concern, as the possible departure of stocks from the world market, due to Russian grain exports, now under sanctions, following a possible agreement and ceasefire, could in a relatively short time bring down world prices, which have risen to unprecedented heights. Or the Mediterranean region, which is crucial for the security of Europe's borders, could quickly receive supplies of food supplies to ease food supply problems.

Events, as yet uncertain, will increase the importance not only of the world trade but also the maritime routes to the North African region, which is facing a serious food crisis. The demographic explosion in the countries at the end of the food supply chain, coupled with the already large numbers of people in financial and existential crisis, could lead to hunger riots and the arrival in Europe of new and larger than ever before flows of economic migrants. Countries alongside the routes of illegal migration flows should therefore prepare themselves for the consequences of the migration and for further strengthening their border protection.

Main component of industrial safety

Industrial safety assures the development of economics and business, optimizing the use of opportunities.[6] The hazards or catastrophic results can derive from improper industrial safety management, such as terrible injury and wound from human resources, severe property loss to the organization or business, or knockdown environmental harm.[7] Effective industrial safety maintenances the operational facilities safety, workers safety, and environmental protection from the occurrence of hazards and damage from accidents. The main goal of industrial safety is not only to

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[6]   PIROGOVA, O. – NUZHDIN, R. – PONOMAREVA, N.: Indication of industrial safety of sugar production in Russia. E3S Web of Conferences, 2021. p. 284, 02015. https://doi.org/10.1051/e3sconf/202128402015 (downloaded 16 May 2022)

[7]   EHS Insight Resources: A Brief Guide to Industrial Safety Challenges and Solutions; https://www.ehsinsight.com/blog/a-brief-guide-to-industrial-safety-challenges-and-solutions (downloaded 13 May 2022)

pursue profitable business, but also to keep workers safe, preventing accidents from injuries, illness, or death.[8] We will discuss the definition and importance of industrial safety in the next part in detail.

It is implicated from extensive literature that it is essential to realize the importance of industrial safety at theoretical and practical level. Why we wanted to conduct this research about industrial safety of food production and tried to provide the suggestions from reducing operational risks? Nonetheless, each and every one knows how important food is for us, not only for the present generation but also for the future generations. It should be alerted to everyone that we are facing challenges from the food crisis, food safety and food security, because of the rapidly increasing population, limited natural resources, climate change, pandemic, war,[9] and other factors. How can we feed the estimated more than 9 billion people in 2050.[10] Along the food supply chain,[11] a great number of researchers studied how to achieve sustainable food supply from the point view of realizing sustainable agriculture,[12] such as precision agriculture,[13] organic farming,[14] agroecology,[15] and stricter animal welfare standards.[16] Besides the producing sector, we can also seek for effective and efficient measures to achieve sustainable agriculture and food supply from processing,

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8 DEB: What Is Industrial Safety And Why It Is Important? https://industrialsafetyguide.com/industrial-safety/ (downloaded 11 November 2020); Readiness plan, Hanford 300 Area Treated Effluent Disposal Facility Revision 1; p. A-6). 1994. https://www.osti.gov/biblio/10103707 (downloaded 16 May 2022); EHS Insight Resources op. cit.

9 The Russia-Ukraine War and Global Food Security: A Seven-Week Assessment, and the Way Forward for Policymakers; https://www.csis.org/analysis/russia-ukraine-war-and-global-food-security-seven-week-assessment-and-way-forward (downloaded 22 April 2022)

10 ReliefWeb: How to feed the world – 2050: High-level Expert Forum, Rome 12-13 Oct 2009 – Investment https://reliefweb.int/report/world/how-feed-world-2050-high-level-expert-forum-rome-12-13-oct-2009-investment (downloaded 20 April 2022)

11 POSKA, J.: The Food Supply Chain: Local vs. Conventional; Field to Family, 15. March 2021. https://fieldtofamily.org/food-supply-chain/ (downloaded 16 May 2022)

12 Food and Agriculture Organization of the United Nations: Food safety and quality, Q&A on food safety; https://www.fao.org/food-safety/background/qa-on-food-safety/en/ (downloaded 21 April 2022)

13 BONGIOVANNI, R. – LOWENBERG-DEBOER, J.: Precision Agriculture and Sustainability; Precision Agriculture, 2004/4. pp. 359–387. https://doi.org/10.1023/B:PRAG.0000040806.39604.aa (downloaded 21 April 2022); TAKÁCS-GYÖRGY, Katalin – TAKÁCS, István,: What makes the society better of agriculture is precision? – By the thoughts of the 'de-growth' theory; In: Nyéki, Anikó – Kovács, Attila József – Milics, Gábor (Eds.): Towards sustainable agricultural and biosystems engineering; Universitas-Győr Nonprofit Kft., 2017. p. 14.

14 DHIMAN, V.: Organic Farming for Sustainable Environment: Review of Existed Policies and Suggestions for Improvement; 2020/2. p. 11.

15 FAO: Sustainable Food Production for a Resilient Rosario; http://www.fao.org/agroecology/database/detail/en/c/1416707/ (downloaded 21 April 2022)

16 FRIEDMANN, D.: Adding Ethicality to the Menu of the Farm to Fork Strategy; SSRN Electronic Journal; 2021. https://doi.org/10.2139/ssrn.4018161 (downloaded 15 May 2022)

distribution, marketing and servicing.[17] Industrial processing of food, a heavy and large industrial activity, is one of the key factors in food supply chain, involving high requirements for human resources and machinery, which has high risk in food safety and workers safety. An efficient food industry also can decrease the food waste.[18] Unfortunately, the majority literatures about industrial safety of food production focus on specific food product, such as dairy product,[19] sugar,[20] etc. or general food safety issues among the whole food supply chain, and omit the general summary research about industrial safety of food production at processing level specifically.

Therefore, we tried to conduct this research through a broad look on the importance of industrial safety of food manufacturing process and provide useful information for risks reduction thinking based on the secondary research methodology and content analysis.

1.1 Industrial safety and food production

As the name suggests, industrial safety is referring to safe management practice in industrial sector, and it assures the workers, assets, and environment safety from hazards, risk, accidents, and near misses. Industrial safety is the primary element of an industry to keep smooth-running business and healthy, safe, and happy the workers. This concept should be concerned at a federal, state and local level because the optimal level of industrial safety ensures the country's food independence. If the industrial safety can not be ensured, the unpleasant hazards or catastrophic loss will happen, such as foodborne pathogens,[21] such as serious problems in production output, in shipping schedules, in fulfillment, in the field of vendor relationships and customer satisfaction. The main industrial safety can be categorized as general safety, site-specific safety issues, occupational health and safety, process and production safety, material safety, workplace safety, fire safety, electrical safety, ergonomics safety, chemical safety, radiation safety, building and structural safety and environmental safety.[22]

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[17] NOSRATABADI, S. – MOSAVI, A. – LAKNER, Z.: Food Supply Chain and Business Model Innovation, Foods, 2020/2, p. 132. https://doi.org/10.3390/foods9020132 (downloaded 16 May 2022);
POSKA, J.: The Food Supply Chain: Local vs. Conventional; Field to Family, 15. March 2021. https://fieldtofamily.org/food-supply-chain/ (downloaded 16 May 2022);
FAO: The Food Supply Chain; https://www.fao.org/family-farming/detail/en/c/1116584/ (downloaded 22 April 2022)

[18] SANDERS, T. A. B.: Food production and food safety; 1999. BMJ, 318(7199), 1689-1693. https://doi.org/10.1136/bmj.318.7199.1689 (downloaded 16 May 2022)

[19] USTINOVA, Y. – ERMOLAEVA, E. – CHISTYAKOV, A.: Occupational safety and health protection in the dairy industry in accordance with the requirements of gost r 54934-2012 / ohsas 18001: 2007; IOP Conference Series: Materials Science and Engineering, 2020. https://doi.org/10.1088/1757-899X/1001/1/012123 (downloaded 16 May 2022)

[20] PIROGOVA – NUZHDIN – PONOMAREVA op. cit.

[21] Ibid; SANDERS op. cit.

[22] DEB op. cit.; EHS Insight Resources op. cit.; Safeopedia: What is Industrial Safety? – Definition from Safeopedia; http://www.safeopedia.com/definition/1052/industrial-safety (downloaded 16 May 2022)

Due to the paper limitation, we will only discuss the industrial safety at food processing level from the following aspects:

- food industrial facility design;
- food industrial technical safety;
- food processing materials safety;
- food industrial occupational safety;
- food industrial fire protection;
- food industrial environmental protection.

Food supply chain (FSC) is a series activity alongside the chain of a food product from farm to fork.[23] The primary 5 steps of food supply chain are showed in Figure 1. The Figure 2 shows the main factors in a food supply chain its producers (farmers), processors (manufacturers), distributors, retailers or restaurants, and consumers. The farmers plant and harvest the raw food materials, processors or industrial manufacturers process the food products, distributors transport the find food products to retailers or restaurants, and ultimately the consumers consume the final food products[24] Sanders (1999) examined that modern food production has typical features as: centralization (raw food materials are produced in large farms and the final food products are processed industrially), and globalization (the final food products are sold by upper-markets and multi-national food outlets).[25] These characteristics make food into high risks of foodborne pathogens and toxins. A successful paradigm of improving food safety is the concept of Hazard Analysis and Critical Control Point (HACCP), which is a systematic and scientific approach to assess hazards (a biological, chemical or physical agent in food, with the potential to cause an adverse health effect) and create effective control measures (relying on prevention), throughout the food supply chain.[26] In food processing step, the naturally occurring toxicants can be destroyed and the growth and spread of pathogenic and spoilage organisms can be inhibited. The safety and the use of food additives as preservatives should be careful, and the package of food products should avoid the microbiological contamination.[27] While Vincent[28] (1990) argued that food additives cannot represent a heavy food safety risks, due to the strict control of their use by both toxicologists and enforcement authorities. The main industrial food safety is classified as two factors: microbiological and chemical. The industrial requirements for food safety are

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[23] NOSRATABADI – MOSAVI – LAKNER op. cit.; POSKA op. cit.; FAO: The Food Supply Chain op. cit.

[24] WUNDERLICH, S. M. – MARTINEZ, N. M.: Conserving natural resources through food loss reduction: Production and consumption stages of the food supply chain; International Soil and Water Conservation Research, 2018/4., pp. 331-339. https://doi.org/10.1016/j.iswcr.2018.06.002 (downloaded 16 May 2022)

[25] SANDERS op. cit.

[26] Hazard Analysis and Critical Control Point (HACCP) system and guidelines for its application; https://www.fao.org/3/y1579e/y1579e03.htm#fn1 (downloaded 15 May 2022)

[27] SANDERS op. cit.

[28] VINCENT, P.-M. (1990). Industrial requirements in food safety; Food Additives & Contaminants, 1990/7 pp 188-190. https://doi.org/10.1080/02652039009373878 (downloaded 16 May 2022)

ordered by foodborne diseases, malnutrition, environmental contaminants, natural toxicants, pesticides residues, and food additives.[29]
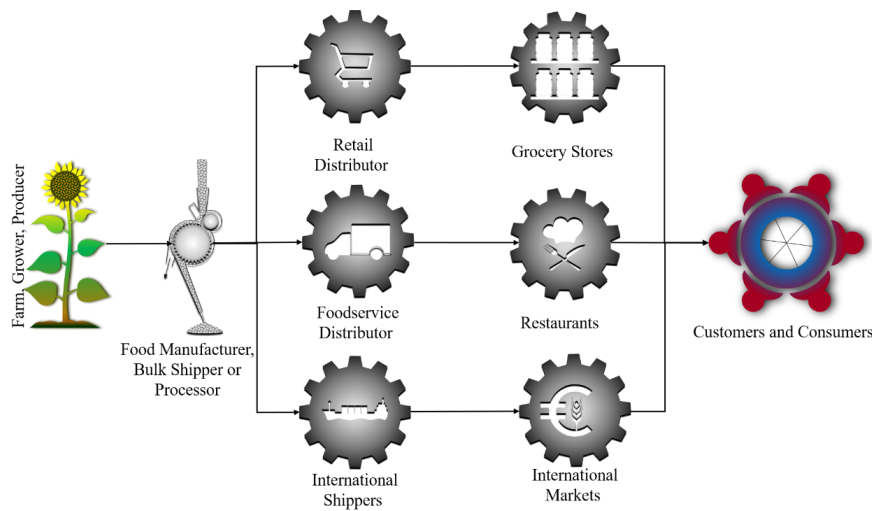
Figure 1. Food supply chain
Source: *Edited by the authors based on Edraw Max*, n.d.)

Industrial food processing is one of the key points in food supply chain, the food safety is exposed to high risks if the industrial safety is not managed well. The Table 1 lists the possible hazards of food safety in processes and steps, including the raw materials transformation and food products conservation and storage.

	Processes and steps	Possible hazards									
		BC	EC	My	PAR	PR	TDS	USBO	USCO	USOO	VDR
	Food commodity	●	●	●		●				●	●
	Conservation and storage	●		●		●				●	
	1st transformation										
	(I) **physical** processes										
	- heating, cooking	●					●				
	- deep freezing	●									
	- pressure, filtration	●			●						
	(II) **chemical** processes										
	- hydrogenation				●						

[29] CHOU, M.: Critical Food Issues of the Eighties: Pergamon Policy Studies on Socio-Economic Development; Pergamon Press, 1979.

- washing, peeling				●				●		
- acid hydrolysis				●				●		
- neutralization by bases				●				●		
- extraction by solvents				●						
- substitution, reticulation				●				●		
- conservation, antioxidation				●						
- pH adjustment				●						
- filtration, decoloration	●			●						
- ion exchange resins				●				●		
(III) **biological** processes										
enzymatical transformations:				●		●				
- hydrolysis				●		●				
- clarification				●		●				
- fermentation										
(IV) **material** used										
- tanks, pipes, etc. in metal or plastics	●							●		
- filtration or ultrafiltration membranes	●							●		
- joints, pumps (lubricants)	●							●		
(V) **hygiene** of personnel	●									
(VI) **hygiene** during processing	●	●								
Intermediate storage	●	●								
2nd transformation (see above: 1st transformation)										
Packaging							●	●	●	
Final storage	●									
Warehousing and display	●									

BC, biological contamination; EC, environmental contamination; My, mycotoxins; PAR, processing aids residues; PR, pesticide residues; TDS, thermal degradation substances; USBO, undesirable substances of biological origin; USCO, undesirable substances of chemical origin; USOO, undesirable substances of other origins; VDR, veterinary drug residues.

Table 1. Possible hazards along the food chain[30]

1.2 Food industrial facility design

Industrial facility means any facilities, land, buildings, or structure(s), used for manufacturing, processing, or assembling any product, commodity or article, but not the sewage treatment works.[31] When we design the location of industrial facility, we

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[30] Source: VINCENT op. cit.
[31] Law Insider: Industrial facility definition; (downloaded 16 May 2022)
    https://www.lawinsider.com/dictionary/industrial-facility (downloaded 16 May 2022)

need to bear in mind that the input such as transportation and production costs should be as low as possible.[32] Also, it should be mentioned that the construction of industrial facility must take lighting strike into consideration, since direct lightning strike in industrial facilities may result in severe damage from the views of magnetic field and the electrical surges.[33]

Masri et al. examined the PM 2.5 concentration indoor is almost seven times more as outdoor of industrial facility, and concluded that it is needed for basic actions of indoor air pollution control, more proper regulation to reduce the indoor PM 2.5 level, and the ongoing air monitoring.[34] While, in food industry, the biogas combustion in a combined heat and power engine could locally generate electric and thermal energy, which could be used to self-supply the industrial facility, avoiding greenhouse gas emissions from the traditional energy sources.[35] Industrial facility in safety system can be also exposed to risks in case of accident if there are malicious changes to sensor data or automated device settings.[36]

Besides, the industrial facility design should pay high attention to the food safety in food processing step. The main industrial food safety risks derive from microbiological and chemical materials.[37] Food processing is the key step to transform raw materials to food products and is mostly affected by temperature, radiation, precipitation, etc.[38] Therefore, the hygiene and critical control points of the food industrial buildings or the facilities are of great importance for ensuring food safety. In particular, the temperature control in pathogen's growth, the temperature conditions monitoring of foods throughout distribution, retail and domestic storage, and time-temperature history translating to microbial growth significantly influence on food safety management improve safety management of foods, at the same time, it is also a challenge in food safety management.[39]

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[32] KAZEM, H. K.: Determine the optimal location for the industrial facility; Journal Port Science Research, 2022/4. https://doi.org/10.36371/port.2021.4.1 (downloaded 16 May 2022)

[33] VILLAMIL, S. N.: Surrogate models to estimate the magnetic field and the electrical surges generated by a direct lightning strike in industrial facilities; ABES STAR, 2022. p. 198.

[34] MASRI, S. – REA, J. – WU, J.: Use of Low-Cost Sensors to Characterize Occupational Exposure to PM2.5 Concentrations Inside an Industrial Facility in Santa Ana; CA: Results from a Worker- and Community-Led Pilot Study, Atmosphere, 2022/5. p. 722. https://doi.org/10.3390/atmos13050722 (downloaded 16 May 2022)

[35] SGANZERLA, W. G. – TENA-VILLARES, M. – BULLER, L. S. – MUSSATTO, S. I. – FORSTER-CARNEIRO, T.: Dry Anaerobic Digestion of Food Industry by-Products and Bioenergy Recovery: A Perspective to Promote the Circular Economy Transition; Waste and Biomass Valorization, 2022. pp. 2575-2589. https://doi.org/10.1007/s12649-022-01682-4 (downloaded 16 May 2022)

[36] KRIAA, S. – PIETRE-CAMBACEDES, L. – BOUISSOU, M. – HALGAND, Y.: A survey of approaches combining safety and security for industrial control systems; Reliability Engineering&System Safety, 2015. pp. 139, 156-178. https://doi.org/10.1016/j.ress.2015.02.008 (downloaded 16 May 2022)

[37] CHOU op. cit.

[38] ELENA op. cit.

[39] VALDRAMIDIS, V. P. – KOUTSOUMANIS, K. P.: Challenges and perspectives of advanced technologies in processing, distribution and storage for improving food safety; Current Opinion in Food Science, 2016.12, pp. 63-69. https://doi.org/10.1016/j.cofs.2016.08.008 (downloaded 16 May 2022)

In the end, structural safety summarized the continued capability of load bearing members of a building or structure, based upon the structural stability certificate and the completion certificate submitted by the concerned Technical Personnel for fire safety, hygienic and sanitary conditions inside and the surround the building, which must be fit for occupation.[40]

1.3 Food industrial technical safety

Technical safety concepts reach beyond only maintaining machinery. It can be used to describe the safety requirements related to the design and operation of hazardous processes. Technical safety studies are undertaken for offshore and onshore process facilities, throughout the project lifecycle, from concept selection to the operational phase.[41] In food industry, there are a massive robots, machines,[42] and technologies used, for example, Internet of Things (IoT) technology can be used into food grain processing, packaging of food grains, and transporting to a wholesale market and finally to the retail market.[43] High-intensity ultrasound (HIUS), as an assistant non-thermal technology, used in food filtration, drying, sterilization, extraction, food preservation, emulsification, tempering, bleaching, etc.[44] can efficiently improve the food quality and safety by increasing efficiency, improving mass and heat transfer, reducing processing time, increasing physical mixing, lowering processing temperature, selecting extraction, increasing yield, etc.[45] Technologies should be considered in industrial food processing: preservation, freezing, refrigeration, dehydration, and aseptic processing. At the same time, food traceability should be adapted to all the food supply chain, including food processing.[46]

1.4 Food processing materials safety

The food contamination on food processing materials (stainless steel, rubber gaskets, membranes, polymer or metal conveyor belts, etc.) can harm not only food safety and quality, but also the processing efficiency.[47] As the previous chapter 1.1

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[40] Law Insider: Structural safety Definition; https://www.lawinsider.com/dictionary/structural-safety (downloaded 16 May 2022)

[41] Safety Consultants & Solution Provider: Introduction to Technical Safety; https://scspng.com/ (downloaded 16 May 2022)

[42] Peddler's Son: How Technology Impacts the Food Industry; 8 January 2021, https://peddlersson.com/how-technology-impacts-the-food-industry/ (downloaded 15 May 2022)

[43] GROVER, J.: Industrial IoT and Its Applications; In: RODRIGUES, J. J. P. C. – AGARWAL, P. – KHANNA K. (Eds.): IoT for Sustainable Smart Cities and Society, Springer Cham, 2022. pp. 107-124. ISBN: 978-3-030-89553-2

[44] DOLATOWSKI, Z. J. – STADNIK, J. – STASIAK, D.: Applications of Ultrasound in Food Technology; ACTA Scientiarum Polonorum, Technology Aliment. 2007/3. p. 11.

[45] SOLTANI FIROUZ, M. – SARDARI, H. – ALIKHANI CHAMGORDANI, P. – BEHJATI, M.: Power ultrasound in the meat industry (freezing, cooking and fermentation): Mechanisms, advances and challenges; Ultrasonics Sonochemistry, 2022. 86, 106027. https://doi.org/10.1016/j.ultsonch.2022.106027 (downloaded 16 May 2022)

[46] ELENA op. cit.

[47] MÉRIAN, T. – GODDARD, J. M.: Advances in Nonfouling Materials: Perspectives for the Food Industry; Journal of Agricultural and Food Chemistry, 2012/12. pp. 2943–2957. https://doi.org/10.1021/jf204741p (downloaded 16 May 2022)

listed the possible hazards alongside the food supply chain, the processing materials cause risks, such as biological contamination (BC), environmental contamination (EC) and undesirable substances of chemical origin (USCO).[48]

1.5 Food industrial occupational safety and health (OSH)

Occupational safety and health, a part of a company's overall management system (Ustinova et al., 2020) means the prevention of human's safety, health, and warfare hazards and accidents from the work-related activities in working place,[49] or promotes and maintains the highest level of physical, mental and social well-being of humans,[50] including industrial food processing.[51] Specific regulation or standards of occupational health and safety were released at international and state level to ensure a good occupational health and safety, while balance the economic benefits, such as the international standards Occupational Health and Safety Assessment Series,[52] Occupational Safety and Health Administration (OSHA) in the U.S.[53] From the aspect of science and practice of occupational safety and health, the disciplines can be occupational medicine, nursing, ergonomics, psychology, hygiene, safety and other.[54] Ergonomics, also known as the work-related musculoskeletal disorders (MSDs), is one of the most common illness in work place and it contains two parts: evaluate the working environment from physical aspects (e.g. workstations), and how to prevent work-related musculoskeletal disorders from the way people work.[55] Musculoskeletal disorders means an injury to the human's joints, ligaments, muscles, nerves, tendons, and structures that support your limbs, neck, and back.[56] Thus, workers are encouraged to have regular and frequent breaks or use protective gear or equipment, such as anti-fatigue mats or back braces even though the current productivity probably is influenced.[57]

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[48] VINCENT op. cit.

[49] Occupational Safety and Health; https://www.ioe-emp.org/policy-priorities/occupational-safety-and-health (downloaded 15 May 2022)

[50] Occupational health; https://www.who.int/health-topics/occupational-health (downloaded 15 May 2022)

[51] TJIPTADI, A. T. – DEBORA, F. – ROZI, S. F. – ARYA, R.: Prototype Design Mini Crane Simulator as Viewer Tool Safety Accidents in Dojo PT. XYZ.;
https://jurnal.yudharta.ac.id/v2/index.php/jkie/article/view/2657 (downloaded 22 April 2022);
Peoplehum: What is occupational safety?
https://www.peoplehum.com/glossary/occupational-safety (downloaded 16 May 2022)

[52] OHSAS 18001; Wikipedia.
https://en.wikipedia.org/w/index.php?title=OHSAS_18001&oldid=1079718010 (downloaded 16 May 2022)

[53] United States Department of Labor: About OSHA – Occupational Safety and Health Administration; https://www.osha.gov/aboutosha (downloaded 15 May 2022)

[54] Occupational Health op. cit.

[55] MOCAN, Anca – GAUREANU, Alin – SZABÓ, Gyula – MRUGALSKA, Beata: Arguments for Emerging Technologies Applications to Improve Manufacturing Warehouse Ergonomics; Sustainability and Innovation in Manufacturing Enterprises, 2022.
https://link.springer.com/chapter/10.1007/978-981-16-7365-8_5 (downloaded 16 May 2022)

[56] RAHN, J.: Ergonomics in the Workplace; https://www.ehsinsight.com/blog/ergonomics-in-the-workplace (downloaded 13 May 2022)

[57] EHS Insight Resources op. cit.

The Occupational Safety and Health Administration (OSHA),[58] a part of the United States Department of Labor,[59] identified the key steps for a proper ergonomic process:

- Management Support;
- Worker Involvement;
- Training;
- Identification of Problems;
- Early Reporting of MSD Symptoms;
- Solutions to Control Hazards;
- Process Evaluation.

In a wholesale bakery company, the successful example of occupational accident prevention by the behavioral approach is that the workers could react favorably to the program and improve their safety performance by pinpointing and reinforcing safe performance in a manufacturing plant.[60] In Russia's dairy industry, a series of occupational safety and health goals or regulations has been achieved or developed, for example, the regular documents were presented in "Register of regulatory documents in the field of ecology" and "Register of regulatory documents in the field of BT, the procedure "Emergency preparedness and response" was developed for the management system of the dairy industry and OZ", the documentation of occupational safety and health such as "Hazard identification and risk assessment", "Register of hazards and management risks" and "Register of significant hazards and unacceptable risks", "Integrated policy in the field of ecology and labor safety and health protection; "Program for achieving goals" in the dairy industry, the procedure "Identification of legislative and other requirements", "Register of regulatory documents in the field of ecology", "Register of regulatory documents in the field of labor safety and health protection" have been developed.[61]

1.6 *Food industrial fire protection and electricity safety*

Fire safety system includes three aspects: building exit system, fire alarm system and fire extinguishing system. Proper maintenance and repair of fire safety systems is governed by fire codes. Fire protection systems include installation and use structures. A good fire protection system can minimize the impact of fire on people and property. Fire protection systems can generally be understood as two categories: passive fire protection and active fire protection.[62]

Electrical safety is a system of standards and measures for preventing electrical hazards such as electric shock, arcing, and common electrical hazards. Industrial electrical safety requires electrical equipment to be in working order, as fully

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[58] United States Department of Labor: OSHA – Ergonomics; https://www.osha.gov/ergonomics (downloaded 15 May 2022)

[59] About OSHA op. cit.

[60] KOMAKI, J. – BARWICK, K. D. – SCOTT, L. R.: A Behavioral Approach to Occupational Safety: Pinpointing and Reinforcing Safe Performance in a Food Manufacturing Plant; p. 12. https://doi.org/10.1037/0021-9010.63.4.434 (downloaded 16 May 2022)

[61] USTINOVA – ERMOLAEVA – CHISTYAKOV op. cit.

[62] Facilitiesnet: Key Components of Fire Protection Systems; https://www.facilitiesnet.com/firesafety/article/Key-Components-of-Fire-Protection-Systems--18677 (downloaded 16 May 2022)

grounded as possible and ideally double insulated. Industrial companies often use a number of products, protective equipment and electrical safety devices to protect their employees from electric shock and related risks, such as Electrical Safety Mats, Electrical Safety Toolkits, Portable Appliance Testers (PAT), Insulation Testing, Voltage Indication and Testing, Lockout Kits, Earth or Ground Testing Blocks, RCD Testing, Electrical Safety Signs and Posters, PPE, etc.[63] The electrical solutions for the food and beverage industry to guarantee power availability in critical applications, take control of energy consumption and identify energy drifts have been used into practice, such as low voltage switching components, metering, measurement and protection systems.[64]

1.7 Food industrial environmental protection

The way to improve food industrial environmental protection can be analyzed from the following points; reducing the emission waste and pollution saving the energy and resources, at the same time, considering the operation efficiency and business profits. Table 2 shows the suggestions for food manufacturing facility to reduce water, chemical and energy and other natural resources use, and operate more efficiently and save money, such as using clean in place (CIP) system, using CO_2 cleaning etc.[65]

№	Technique	Benefit
1.	Optimize Clean-In-Place (CIP) process	Reduce toxics. Save money.
2.	Extend the useful life of heat transfer fluids	Reduce maintenance costs. Reduce disposal costs.
3.	Extend the useful life of lubricants	Reduce maintenance costs. Reduce disposal costs.
4.	Review refrigeration options and prevent the release of ammonia	Reduce toxics. Reduce spill events.
5.	Use CO_2 cleaning	Reduce toxic chemicals.
6.	Use dry steam cleaning	Reduce toxic chemicals. Reduce water use.
7.	Reduce compressed air usage	Energy savings.
8.	Optimize washdown and sanitation	Reduce costs and water usage.
9.	Use excess heat for other processes	Energy savings.
10.	Use economizers on oven exhausts	Energy savings. Heat plant water.

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[63] RS Components: A Complete Guide to Industrial Electrical Safety; https://uk.rs-online.com/web/generalDisplay.html?id=ideas-and-advice/industrial-electrical-safety-guide (downloaded 16 May 2022)

[64] SOCOMEC Innovative Power Solutions: Electrical solutions for the food and beverage industry; from https://www.socomec.com/food-beverage-industry_en.html (downloaded 16 May 2022)

[65] US EPA: Food Manufacturing Pollution Prevention Techniques, Collections and Lists, 2018, May 14. https://www.epa.gov/smartsectors/food-manufacturing-pollution-prevention-techniques (downloaded 16 May 2022)

		Heat building spaces.
11.	Insulate chilled water systems	Energy savings.
12.	Plant wide energy savings initiatives	Energy savings.
13.	Use flash steam	Energy savings.
14.	Use electric actuators vs. pneumatic or hydraulic	Reduce lubricants leakage.
15.	Optimize chiller performance	Energy efficiency savings.
16.	Thermal storage and transfer between food items	Energy savings.
17.	Generate biogas from organics like chicken manure	Energy savings. Means of disposal.
18.	Pesticide reduction	Toxic use reduction.
19.	Produce nitrogen on site	Reduce losses, purchase and transportation costs.
20.	Switch individual refrigeration condensing units to parallel-compressor refrigeration systems	Reduce installation cost, energy consumption and improve food preservation.
21.	Refrigerant free cooling (evaporative)	Energy savings, reduce use of refrigerant.
22.	Prevent mold	Personnel safety & prevent food contamination.
23.	Implement variable speed drive pumps	Energy savings.
24.	Boiler maintenance	Energy savings, reduce capital cost.
25.	Implement modular on-demand steam boilers	High pressure output, low energy consumption and compact design.
26.	Use absorption chillers	Reduce emissions and energy efficiency improvements.
27.	Explore using heat pump food dryers	Reduce energy consumption.
28.	Monitor and maintain pneumatic cylinders for efficiency and up- time	Efficiency improvement and cost savings.
29.	Implement rainwater harvesting	More efficient water usage and cost savings.
30.	Explore using recycled water for cooling towers	Reduced water usage.
31.	Consider EPA Energy Star program	Reduce energy consumption.
32.	Implement manufacturing efficiency improvements	Cost savings, energy savings.
33.	Choose electrical enclosures that are easy to clean	Reduce toxic chemicals and water usage.

Table 2. Food Manufacturing Pollution Prevention Techniques[66]

[66]   Ibid.

2. Methodology

In order to provide a systematic understanding of industrial safety of manufacturing food process, and provide the potential hypothesis information for research of risks reduction, we used the secondary research[67] and content analysis in this review research. This research method is a cost-effective and time-effective solution. The secondary data was collected through a combination of searches, according to the basic knowledge of industrial safety, food supply chain, and food safety, by a review of relevant materials including available readily websites, reports, authority standards and reports, publications, and other documents available on the internet.[68] Based on the secondary data, we used the systematic and replicable content analysis method, which can compress the huge text information into fewer categories by explicit coding rules.[69]

3. Results

The findings concluded from the extensive literature review of the studies reveal that an efficient industrial safety is not only equal to a good business and business profitability[70] but workers' safety, health, and happiness[71] and a country's food independence.[72] To achieve a safe food supply for present generation and future generations, it is necessary to use hazard analysis critical control concept in food supply chain. An safe industrial food processing can not only improve the food quality and safety,[73] but can also decrease food waste.[74] The zero-risk level is not an option, the collaborative works from industrialists, food toxicologists, nutritionists, and food scientists should determine the risks or benefits from case by case.[75] We must keep high the sustainable food production, in order to feed more than 9 million population in 2050.[76]

4. Discussion

Food is everyone's concern. While due to the rapid increasing population, limited natural resources and the climate change, we are facing food production crisis. What is worse, the COVID-19 pandemic and the war between Russia and Ukraine

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[67] STEWART, D. W. – KAMINS, M. A.: Secondary Research: Information Sources and Methods; SAGE Publishing, 1993.

[68] MENSAH, J. Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review; Cogent Social Sciences, 2019/1, 1653531. https://doi.org/10.1080/23311886.2019.1653531 (downloaded 16 May 2022)

[69] STEMLER, S.: An overview of content analysis; https://doi.org/10.7275/Z6FM-2E34 (downloaded 16 May 2022)

[70] Occupational Safety and Health op. cit.

[71] Readiness plan, Hanford 300 Area Treated Effluent Disposal Facility Revision 1; p. A-6). 1994. https://www.osti.gov/biblio/10103707 (downloaded 16 May 2022); SANDERS op. cit.

[72] PIROGOVA – NUZHDIN – PONOMAREVA op. cit.

[73] SOLTANI FIROUZ – SARDARI – ALIKHANI CHAMGORDANI – BEHJATI op. cit.

[74] SANDERS op. cit.

[75] VINCENT op. cit.

[76] ReliefWeb: How to feed the world – 2050: High-level Expert Forum, Rome 12-13 Oct 2009 – Investment https://reliefweb.int/report/world/how-feed-world-2050-high-level-expert-forum-rome-12-13-oct-2009-investment (downloaded 20 April 2022)

shocked a lot of industries, including food supply. We will feed more than 9 billion population in 2050, while the available farming lands are decreasing. Sustainable development is the only way to reach the goal to feed the present generation and future generations. Some scientists and scholars focus on the possibility of sustainable agriculture by advanced and sophisticated technologies. According to the understanding of food supply chain, we also found in food industrial process, the proper industrial safety of food production can also provide suggestions for a sustainable food supply from reducing the waste and pollution, save energy and natural resources. A well-developed food industrial safety can not only ensure workers' safety, health, and happiness, but also a smooth-running business. In this research, we analyzed the risks from industrial safety, together with food production process, and concluded the potential risks of food industrial safety and the operational risks. This finding can be a suggestion for the future research on sustainable food supply or food safety.

4.1 Implications

I used the secondary research review and content analysis, based on extensive literature to find the importance of industrial safety of food manufacturing process and provide useful information for operational risks reduction thinking. Food manufacturing process is one of the main five actors in food supply chain, which is a transformation process from raw food materials to end products. The specific characteristics may cause high food safety risks from microbiological and chemical threats. The industrial facilities and raw food materials may maintain harmful contamination to food safety and workers' safety and health or also themselves can be a risk for workers' safety and health. Industrial safety guarantees both the well-going business and the good health level of workers. Occupational safety and health promised workers' safety and health form physical, mental, and social well-being sessions. The industrial fire protection and electrical safety also should be concerned in food industrial safety. Last but not least, importance equally with workers' safety and health, the protection of environment can be improved from reducing waste and pollution and save energy and natural resources. While, along with these considerations, the profitability and benefits of business should be always kept in mind.

4.2 Limitations and directions for future research

Since the time limitation, we conducted the research for understanding the importance of food industrial safety and the operational risks by using the cost-effective and time-effective research-methodology. Due to the limitation of research-methodology itself, although content analysis as a systematic and replicable technique can compress many words of text into fewer content categories, each word probably cannot equally interrupt a category.[77] Thus, the future researchers can use the more sophisticated methodology on this topic to examine the industrial safety of food production at processing level, such as indicative approach,[78] one of the techniques to assess economic process. The research direction can be the detailed solutions to the risks mentioned in this research.

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[77] STEMLER op. cit.
[78] PIROGOVA, O. – NUZHDIN, R. – PONOMAREVA op. cit.

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BÁLINT SOMKUTI

COMPREHENSIVE INTEREST ADVANCEMENT IN THE POST TRUTH WORLD

> *"Fighting power is but one of the instruments of grand strategy – which should take account of and apply the power of financial pressure, of diplomatic pressure, of commercial pressure, and not least of ethical pressure, to weaken the opponents' will [...] Unlike strategy, the realm of grand strategy is for the most part terra incognita – still awaiting exploration and understanding."*
>
> (Basil Liddel-Hart)

Introduction

Due to their high financial, social and manpower costs; classical heavy industry and high technology-based military conflicts are becoming very rare. Yet, interest advancement does not cease to exist with the decline of kinetic maneuvers. Combining old and new methods alike; major – and what is new – medium powers increase their zone of influence through new methods. Be they the White Helmets in Syria, the Fethullah Gülen organizations (FETOs), or PMCs like Vagner, not to mention other NGOs with even more suspicious backgrounds; social activity-based "active measures" became the norm in today's highly interconnected world. A news outlet, a television station, an ideology-based social organization or even charity relief funds can all act as proxies, and in many occasions they do, for nation states, non-state actors or even super empowered individuals alike. With the advent of this new phenomenon in the spirit of Basil Liddell Hart's grand strategy, no country can allow to leave its most vulnerable, yet most crucial resource unguarded: the social cohesion.

Conflicts arise for various reasons, yet in the most (ideology-based) cases, only one of them is usually right. In our world, where there is a constant clash of narratives, warring truths, that is, who is right is usually well hidden behind lies of various degree. And after digging through heinous amount of information, even the most educated and prepared analyst arrives to the moment when he/she can do nothing else, but pick one of the two or more equally well supported opinions, based on previous experience or interests.

In most European Union countries, there is a growing number of disenfranchised citizens. Be they former members of slowly disintegrating middle class (yellow vests in France), illegal migrants, who don't get what they were promised (2015 migrant crisis) or aging people losing their jobs, who feel a slow but steady collapse of the world they got used to and liked. Their grievances, be they real or perceived, are caused by globalization, negligent governments, major powers' interference, technological advances and the list goes on. All the above groups are vulnerable to counter narratives.

With the continuous disintegration of the nation state, and the parallel strengthening of undemocratic, international, obscurely funded, and sometimes malicious non-state actors such as NGOs, mega companies (dwarfing even medium sized states), as well as corrosive, exclusive ideologies, we can experience events in Europe, or in the US, which were previously unseen for centuries. Under the United Nation's Charter, organized violence, i.e. war, is slowly going out of fashion; however, actors with access to tools and methods to advance their interests will continue to stir trouble.

Divided identities and/or desperate private life situations bring more and more people to do things previously unimaginable, bringing such chaotic events along, like the mass riot between Turks and Kurds on the Hannover airport in January 2018. Such "third world"-occurrences probably will become more and more common in Europe.

All this – coupled with sky high social, political and financial costs of classical, intrastate warfare – brings us to the point where emerging or reemerging powers, or even allies with conflicting interests are finding novel ways of bending us to their will. Classical economic-political-military pressure is slowly replaced by less direct, yet just as efficient means used by states and other actors alike.

To clarify their position, the author discusses the subject in relation to recent phenomena such as:

1. Ongoing proliferation of strictly military terms, concepts and tools such as 'campaign', 'division' – as organizational unit, 'strategy' or 'GPS' into civilian life, and public speech;

2. In conjunction with 1., continuous merging of previously sharply divided military or civilian methods and tools, such as leadership, doctrines, or UAVs/drones, creating an environment where any occurrence can be labeled military or vice versa;

3. Combining 1. and 2., appearance of private, global, non-governmental as well as governmental organizations, such as Amnesty International, Human Rights Watch, Private Military Companies (Blackwater-Academi-Xe Services, Vagner) or National Endowment for Democracy organizing professional campaigns with civilian participants;

4. Combining 1., 2., and 3., a continuous total, but low intensity worldwide conflict – as formulated in theories such as hybrid warfare or 4GW – is bringing a gradual, but visible hollowing out of terms of peace and war and events, like military strikes by US in Syria with questionable legal background, Russian intervention in Ukrainian civil war, or Chinese-American trade/legal war not to mention Color revolutions.

Due to the above factors, the author approaches proxies as a broader term, they understand under 'proxy', in conjunction with the common use of the word as defined by Merriam Webster Dictionary.

So, how does conflict in this "brave new world" of intertwined interests, conflicting theories and obscure actors look like? The author will try to shed new light on the not so shiny present and future of interest advancement, which clearly threatens not only our security, but also the way we live our lives.

Every good analysis has three obligatory elements: describes the situation, presents its roots and causes and finally provides guidance how to deal with it. Going along this train of thought, in this present article, the author describes military aspects of the international environment of the 2010s: the limits of modern warfare, the effects of emerging powers and their proxies, as well as changes in the society and economy: super empowered individuals and their NGOs, along with fake news used as strategic communication tools. As a conclusion, the fundaments of a grand strategy, in the sense of Liddel Hart, to deal with these challenges are presented.

1. Effects of a globalized world

1.1. Limits of modern warfare

The way a state wages wars mirrors a lot of factors, including technological level, social system, historical experiences, ruling ideology, economic potential and sometimes the limitations imposed upon it by intrastate relations. The above are true, whether the subject of a study is ancient Athens, the Roman Empire, Napoleon's France or the Mao Ze Dong's China. After the end of the Cold War, in the age of globalization, most aspects defining interest advancement have undergone serious changes. As the widely quoted, and mostly misinterpreted work of Chinese Major Colonels Qiao Liang and Wang Xiangsui wrote "strong countries make the rules, while rising ones break them and exploit loopholes".[1] NGOs (non-governmental organizations), global media outlets and other actors considered non-issues by most western scholars, also greatly attributed to those changes in the way wars are fought in the 21st century. The assumption – repeated many times by the Chinese theorists, and for unknown reasons disregarded by the most who quote their work – is that this new war will have no limits. No internationally accepted rules apply, no target is taboo enough to be spared, no territory – be it physical or cyber – is safe, there is no "hinterland", no limits in war. At all. This total, but at the same time limited warfare is already with us. This new way of war is not only omnidirectional, synchronized and asymmetrical, but also a war fought along long forgotten motivations, methods and by fighters who are not soldiers. This situation still seems to be incomprehensible for most western analysts.

Even though there are exceptions, but in most cases there are serious limitations on using conventional warfare as a tool to resolve international disputes. Not only the UN Charter forbids it, human, economic, social and other costs related to it skyrocketed recently. Not to mention deterrence, which Martin Van Creveld characterizes as: "nuclear weapons are making it impossible for large sovereign territorial units, such as states to fight each other in earnest without running the risk of mutual suicide. […] If states are decreasingly able to fight each other, this points to […] low-intensity conflict as an alternative".[2] This struggle encompasses all aspects of life, blurring the lines of armed conflicts we got used to. The above supports the statement in Unrestricted Warfare's foreword, quoting one of the authors "the first

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[1] QIAO, L. – LIANG, W.: Unrestricted Warfare: China's Master Plan to Destroy America; Echo Point Book and Media, Brattleboro, Vermont, USA, 2015.

[2] VAN CREVELD, Martin: Nuclear Proliferation and the Future of Conflict; Free Press, New York, 1993. p.207.

rule of unrestricted warfare is that there are no rules, with nothing forbidden".[3] As the late analyst Colin S. Gray has said, seven points have to be kept in sight all the times, when discussing warfare of which the first five have relevance to our studies.

"1. War and warfare will always be with us: war is a permanent feature of the human condition.

2. War, and warfare, has an enduring, unchanging nature, but a highly variable character. It follows that history is our best, albeit incomplete, guide to the future.

3. Irregular warfare between states and non-state foes may well be the dominant form of belligerency for some years to come, but interstate war, including great power conflict, is very much alive and well. In fact, today, while most eyes are fixed on irregular forms of conflict as the supposed wave of the future, the next round in strategic history's cycle of great power antagonism is already taking shape. A possible Sino-Russian axis may be emerging that in time would pose a formidable challenge to the American notion of a desirable unipolar world order.

4. The political context is the principal, though far from sole, driver of war's incidence and character. Above all else, warfare is political.

5. Warfare is social and cultural, as well as political, and strategic behavior. As such, it must reflect the characteristics of the communities that wage it."[4]

1.2 Changes in society

Yet, creating a low-intensity conflict as an interest advancement method is not as easy as it seems. Even though globalization as such has its negative effects, be they irregular parking with luxury cars in downtown Budapest, or a clear breach of Islamic dress code in Teheran. Or the visible disappearance of the middle class, the increasing poverty and the resulting polarization of western societies. This hotly debated above opinion received a blast-like support, when Thomas Piketty's book became available in English in 2014.[5] The above combined leads to, on the one hand, to disenfranchised masses in their own lands /citizens/, and to disenfranchised masses in foreign lands /migrants/, on the other hand.

Open world, or to be more precise an open source world to use the term coined by John Robb,[6] only enhances the problem. This phenomenon created freely available and useable knowledge, mostly through the internet. This bazaar of ideas, tools and means increases the chances of terrorist or other malevolent organizations too. The tactics, techniques and procedures for which in previous centuries blood had to shed, are now freely available.

So all of the above combined "warfare uses all available networks – political, economic, social, and military – to convince the enemy's political decision makers that their strategic goals are either unachievable or too costly for the perceived benefit."[7]

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3   Qiao – Liang op. cit.
4   Gray, C. S.: Another Bloody Century; Weidenfeld&Nicolson, London, 2005. p. 24.
5   Piketty, Thomas: Capital in the Twenty-First Century, The Belknap Press of Harvard University Press, Cambridge, 2014.
6   Robb, John: Brave New War: The Next Stage of Terrorism and the End of Globalization; 2007 April 20, Wiley, ISBN: 978-0471780793
7   Hammes, T.X.: The Sling and the Stone: On War in the 21st Century, USA, Zenith Press Minnesota, 2006. p. 14.

1.3   One ideology to rule them all

Even though Francis Fukuyama officially "postponed" the End of History,[8] instead of the "liberal democracy for all", what we have now are human rights on steroids. The all-consuming 'cancel culture' which feeds on grievances seem to attack the very roots of rules meant to support western civilization. Every single person has grievances, yet some groups are keen on intensifying them into political gains, loudly and aggressively using even the meanest terms to gain attention, thus destroying credibility. Outside the US, these groups usually have excellent foreign relations, press support and the means to organize protests. Srda Popovic and his OTPOR movement have successfully brought down the oppressive Milosevic system, which was responsible for untold suffering on the Balkans.[9] Oddly enough, the oppressive face of the system became apparent to the majority of the Serbian population after the NATO bombing of Serbia in 1999. Sarcasm aside, any democratically elected, or outright authoritarian for that matter, government can become unpopular for a number of reasons, starting from natural disasters, through international economic crises to low living standards, due to mismanagement or famine. Yet, somehow liberating movements, supported by foreign funded NGOs, always end up promoting human rightism. So when we analyze proxies the need to analyze human rightism-led activity, which became mainstream recently, and thus cannot be avoided.

2.   The world we live in

2.1   Super empowered individuals

The term super empowered individual is relatively seldom used, but summarizes the issue very well. Although used as early as 2003[10] and usually in conjunction to "lone wolf" terrorists and cybercriminals by 2020, we can say with reassurance that some people – through concentration of wealth, power and networks – can be called as such.

Fethullah Gülen; not too many have heard these two words, the name of a person before the 2016 *coup d'état* in Turkey. Even those who have had usually praised the Turkish founder of a "secular Islamist" movement spanning schools, foundations, banks, media companies and even the Forum for Intercultural Dialogue in Berlin. Most visible were the schools, which used high technology in the classrooms, and in most occasions hired non-Muslim, unsuspecting teachers, who only saw a modern, enlightened religious school, with sound financial support, offered by a local network of various-sized entrepreneurs. The externally interfaith-dialogue focused movement ran schools in 140 countries, and its founder liked to show himself as the Gandhi of Islam, yet within his own circles, he tolerated no dissent, was only interested in power and influence, and not tolerance at all, according to a 2012 Spiegel article. Former

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8   MENAND, L.: The New Yorker, Francis Fukuyama Postpones the End of History; 3 Sept, 2018. https://www.newyorker.com/magazine/2018/09/03/francis-fukuyama-postpones-the-end-of-history (downloaded 04 September 2020)

9   CANVAS homepage; https://canvasopedia.org/about-us/ (downloaded 02 September 2020)

10   BARNETT, Thomas, P. M.: Why the Pentagon Changes Its Maps. And why we'll keep going to war; Esquire, 10 September 2016, https://www.esquire.com/news-politics/a1546/thomas-barnett-iraq-war-primer/ (downloaded 02 September 2020)

members claim that Gülen dreamed of a new age in which Islam will dominate the West, starting from Turkey.[11]

What makes the Gülen network more interesting is the basic concept, which lays on Islamic traditions of goodwill, such as *sadaka* (voluntary charity-benevolence), *zekat* (obligatory almsgiving), *vakif* (charitable endowment) making the participants refer to the network under the names *Hizmet* (Service) or *Cemaat* (Community). These benevolent and widely supported ideological foundations were supplemented with a decentralized organization, which also confirms to local habits, and the spirit of *islam,* where no central religious authority exists.

"The success of Gülen-inspired projects relied on numerous local circles of businessmen, professionals and workers in Turkish cities, towns and rural areas. The model of the local circles arose within the cemaat. A type of social group that evolved in Turkey, after the formation of the Republic and the outlawing of the Sufi orders and the abolishment of the madrasas. Within the cemaats, the sohbets or small groups were established that had no formal membership, no initiation rites, required no building to convene the group and had no public insignia or recognition of membership."[12]

People gathered to participate in socially beneficial and widely supported activities. These *sohbets* were loosely organized and the members were not required to make religious or social pledges, oaths or even contracts when joining the Gülen movement. Contributors became participants simply by working with the others to support the movement's unquestionable objectives of education and service. Gülen himself encouraged the members to maximize the opportunities of the network. The system has not carried out subversive activities, so typical for secret cults, at all. Its mystique Sufi origins only added to the movement's exoticism, drawing people, seeking spiritual enlightenment as well as small entrepreneurs looking for networks and business possibilities. The lack of administrative means also supported the central idea of volunteering for a greater good.

Due to its extremely decentralized and loose system, it was and still is extremely difficult to guess membership levels, but probably it was many hundreds of thousands of moderate Sunni Muslim believers all around the world. Movement schools and businesses organized locally, linked themselves into informal networks, leading to Gülen himself.

To sum the above up the Gülen movement having a clear, seemingly benevolent ideology, was organized along principles, in line with traditional Muslim/ottoman values, was run through a decentralized international system, bound together by the common goal and the ideological leader himself. Only the innermost members saw the real objective of the network, which was characterized by the Guardian "also has some of the characteristics of a cult or of an Islamic Opus Dei." Following the alleged

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[11]   POPP, M.: Altruistic Society or Sect? The Shadowy World of the Islamic Gülen Movement; 2012. https://www.spiegel.de/international/germany/guelen-movement-accused-of-being-a-sect-a-848763.html, (downloaded 03 September 2020)

[12]   EBAUGH, H. R.: The Gülen Movement: A Sociological Analysis of a Civic Movement Rooted in Moderate Islam; Springer Dordrecht, 2010. p. 47. DOI: https://doi.org/10.1007/978-1-4020-9894-9

support by the movement for the 2016 *coup d'état,* it was declared a terrorist organization in Turkey, Pakistan and the Gulf Country Council, calling them Fethullah Terrorist Organizations (FETO).

By all accounts, Fetthulah Gülen was a super empowered individual (SEI). According to the semi-official Mad Scientist blog characteristics of SEIs include:
"• Highly connected and able to reach far beyond their geographic location.
• Access to powerful, low-cost commercial technology.
• Often more difficult to trace or attribute responsibility to actions.
• Not beholden to nation-state policies, ethics, or international law.
• Varying motivations (political, ideological, economic, and monetary).
• Often unpredictable, may not operate or execute like a traditional rational actor."[13]

Talking of SEIs, one just cannot leave out one of the most often overlooked, yet most influential books of the 20th century: Unrestricted War by Colonels Qiao Liang and Wang Xiangsui. The two Chinese senior colonels named 3 important persons, much rather personifying certain aspects of modern international environment, than the actual persona themselves, but they have more than hit the nail on the head. Pablo Escobar, who back in the day ran some 80% of the world's cocaine traffic, Osama bin Laden, the terrorist-ideologue whose eloquent messages still echo in the Middle-East, and of course the usual suspect George Soros, hedge-fund manager turned "philanthropist".[14]

2.2. Ersatz blitzkrieg – NGOs and foundations

Analysts cannot escape comparing the Gülen movement with the Open Society Foundation (OSF – formerly Open Society Institute), run by the usual suspect George Soros. Unlike in the case of FETOs, OSF withstood increasing pressure from many sides. In his famous step shorting the British Pound in 1992 which earned Soros 1 billion dollars, and at the same time, prevented the United Kingdom from joining the European monetary mechanism aimed at creating the Euro some 10 years later. This step is a typical move which we like to call ersatz blitzkrieg – a tool replacing blitzkrieg. On the one hand, the hedge fund manager made a fortune in a day, on the other hand, the soon-to-be European Monetary Union took a serious blow. Asking the ubiquitous question 'cui prodest?' would take us far from the objective of present analysis, yet it is suffice to say that even an ardent progressive magazine such as the Atlantic admits that *"it hasn't been Soros's financial buccaneering or even his political giving that have featured most prominently in the conspiracies about him. It's been his philanthropy. Soros has long been one of the leading donors to progressive causes in the United States and is the most generous financial supporter of pro-democracy organizations around the world."*[15] In a move worthy to be listed

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[13] MAD scientist blog: Emergent Threat Posed by Super-Empowered Individuals; 02 January 2018. https://madsciblog.tradoc.army.mil/16-emergent-threat-posed-by-super-empowered-individuals/?doing_wp_cron=1600066040.2279920578002929687500 (downloaded 01 September 2020)
[14] QIAO – LIANG op. cit.
[15] SOSKIS B: The Atlantic Business, George Soros and the Demonization of Philanthropy, 5 Dec 2017, available at https://www.theatlantic.com/business/archive/2017/12/soros-philanthropy/547247/ (downloaded 05 September 2020)

under 1.3 about exhaustive ideology, Mr. Soskis equals progressive thought with democracy.

One must ask the question who can stop a billionaire if he/she wants to spend money on issues seen as important? Why isn't such person a super empowered individual? Eastern European countries are sensitive to any move interfering with their only recently acquired independence. Especially, when this is done by non-transparent organizations and their acts are rightfully seen as interference into one's internal affairs, which is clearly forbidden by the UN Charter.[16]

But there is more, as regards the foundations: in a clear mission statement, not usually seen on other organizations' pages, National Endowment of Democracy openly speaks about its roles taken over from CIA, the controversies of its actions and about the role it plays in US foreign policy. Tracking its activity like the previously mentioned networks' of FETO and Open Society it can be done through open sources, since the declared objective is, or at least should be without having second thoughts. It would worth to study the case of OTPOR, later CANVAS (Center for Applied Nonviolent Action and Strategies) which is a non-profit, non-governmental, international network, oriented to educational work related to strategic nonviolent conflict, according to their homepage.[17] Well in the old Hungarian adage *"Who pays the gypsy (musician) tells what kind of music is played."* Following the old folk wisdom, the first step is to check who supports and funds CANVAS. By clicking on the 'Friends of CANVAS' tab, likeminded NGOs appear. What is the next logical step of a curious researcher? Picking one and clicking on their funders. I guess it is no surprise that one of the 'Friends of CANVAS' has funders like The National Endowment for Democracy and US Department of State. Truly, only two questions remain. If this can be done, using not open source information, but only two clicks, where is the 'non-interference into one's internal affairs' and what is fake news anyway?

One doesn't have to be an autocratic leader to see that there are lots of non-governmental organizations with lots of money, going after clear and narrow interests of theirs. Their goals – no matter how noble, or beneficent – may not align with the perception of the majority of local population or that of the government, and we are now talking about the best possible scenario. While non-interference into others' internal affairs is a United Nations principle this is probably the least kept UN principle of all.

2.3 Fake news and media

Usually when speaking of fake news, most people think of Russia Today and other Russian state owned news outlets.[18] But we have had in Hungary the famous

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[16] Purposes and principles of the Charter of the United Nations; https://www.un.org/en/sc/repertoire/2010-2011/Part%20III/2010-2011_Part%20III.pdf (downloaded 02 September 2020)

[17] CANVAS homepage op. cit.

[18] ELLIOTT, R.: The Guardian, Opinion Media, How Russia spreads disinformation via RT is more nuanced than we realize; 26 Jul 2019, https://www.theguardian.com/commentisfree/2019/jul/26/russia-disinformation-rt-nuanced-online-ofcom-fine (downloaded 02 September 2020)

scandal when an Axel Springer owned magazine (Ede Teller letter scandal in Népszabadság), not blurred the truth, but outright faked it. Anyway, fake news as a term is also not new. It is 130 years old.[19]

So, which news are really fake? There are countless examples where tarnished news outlets have clearly lied about issues. But fake news are a weapon. A weapon in information warfare, also called PSYOPS, which really should not be a surprise for anybody. Fake news have garnered some real interest since for the first time they were used on us, the western civilization, with success.[20] But why are we so obsessed with countering a clearly propaganda message? Why we plan to suppress "fake news", whose lies should be obvious to anyone, and all that in the name of free speech? Why don't we strive to build a society with transparency, where half-truths are self-evidently refuted? But fake news are not necessarily spread by Russia Today like state televisions, and there are not only states which can use media as a weapon.

"Al Qaeda's most important growth since the 11 September attacks has not been physical, but has been rather its expansion into the Internet. Bin Laden's fighters had used the Internet for propaganda and communication purposes before the attacks, but their use of the medium expanded quickly thereafter. Part of this expansion is due to necessity: Afghanistan has somewhat less utility than previously as a safe haven, and the consequent dispersal of fighters has forced the organization to become more "virtual," or "al Qaeda 2.0," as CNN's Peter Berger insightfully has described its current status. Al Qaeda's reach into the Internet also is due to the rapid development of both the medium and the computers, cell and satellite phones, and Inmarsat radios, with which it can be accessed."[21]

Terrorist groups can also have charity-focused institutions garnering popular support, and at least balancing their objectives like in the case of Hezbollah.[22]

3. Sum of all fears and the way out

3.1 Hybrid warfare as a new way of waging war?

"Under hybrid warfare we usually understand the use of special forces supported by cyber and information warfare and deception. The Russians occupied Crimea through this method and support Eastern Ukrainian rebels in the same way,

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[19] MERRIAM WEBSTER Dictionary: Fake News; https://www.merriam-webster.com/words-at-play/the-real-story-of-fake-news (downloaded 02 September 2020)

[20] RAMSAY, G. – ROBERTSHAW, S.: Weaponising news RT, Sputnik and targeted disinformation; King's College London, The policy instate centre for the study of media, communication and power, 2019. https://www.kcl.ac.uk/policy-institute/assets/weaponising-news.pdf (downloaded 08 September 2020)

[21] SCHEUER, Michael: Imperial Hubris: Why the West Is Losing the War on Terror; Brassey's, 2004. p. 78. ISBN: 57488-849-8

[22] HOFFMANN, F. G.: Conflict in the 21st Century: The Rise of Hybrid Wars; Arlington, December 2007.

but this method is not a cure for all. The mixture is new, but the ingredients are known to everybody."[23]

We have to understand that this so called 'hybrid warfare' has limits too. To be more precise, the 'hybrid warfare and hybrid threats' concept is the very limit to itself. It suggests that we face something new, something really threatening, a challenge beyond our present capabilities. Which is clearly not the case. András Rácz deserves both credit and the opposite at the same time, for clearly identifying the serious and difficult conditions for success of a 'hybrid warfare' operation, and at the same time, giving scientific weight to such a shaky concept.

When factors such as local superiority of (military) force by the attacker, a weak state as target, strong dislike toward the central government by the local population, significant ethnic minority, logistic support from outside, and media presence both inside and abroad are taken into account, the specter of hybrid warfare seem to be less intimidating.[24] On the top of the above, most of the above can easily be replaced by other concepts, such as guerilla warfare. For example, ideology can be as varied as ethnic, religious, other ideological, party affiliated or combination of the above, not to mention countless guerilla organizations, which have fought successfully for decades, while obviously being militarily, economically weaker than their opponents. And since Mao Ze Dong, we all know about the three phases of guerilla warfare.

"Hybrid warfare" in the style of Crimea cannot really be repeated. Contrary to most scholars' views, the author upholds his point that the so-called hybrid warfare as seen in Crimea was and is a rare if not unique phenomenon. The physical proximity of Russia, the beforehand (even if for other reasons) deployed troops, lack of border control, ethnical Russians fearing oppression in an already divided and weak society, low Ukrainian living standards – and the list goes on and on – all contributed to the open arms reception awaiting the little green men. In most places of the world, especially in developed countries, the appearance of "little green men" (light infantry), occupying critical infrastructure and blocking roads will most likely prompt a reaction by superior firepower, as one Estonian military officer said about hybrid scenarios: *"if we see little green men we simply shoot them"*[25]

If that is not viable for some reason, after the initial surprise, the defender still could call up its allies to restore *status quo ante* by joint military force. Only a nuclear power is safe from forceful reversal of such situation. All other means listed under the European Center of Excellence Countering Hybrid Threats are merely cyber, information or clandestine operations, using modern tools and methods, none of which should come as a surprise.[26]

So, while the systematic risks listed under "hybrid threats" are real, they are not because of some heinous enemy's evil doing, but our own complacence and

[23] USAF General Philip M. Breedlove NATO Saceur, Jane's Defence Weekly, 15 April 2015.
[24] RÁCZ, A.: Russia's Hybrid War in Ukraine: Breaking the Enemy's Ability to Resist; Finnish Institute of International Affairs; Helsinki, 2015 vol. 43. p. 11.
[25] RADIN, Andrew: Hybrid Warfare in the Baltics: Threats and Potential Responses, 2017 p. 25.
[26] HYBRID COE Homepage; hybridcoe.fi

incompetence. A conventional, diesel-electronic hunter (SSK) sub chasing a nuclear ballistic missile carrier (SSBN), and taking advantage of its own, less noisy propulsion, is not using a "hybrid method", just taking advantage of the situation and the dissimilarities of the subs. Most hybrid or proxy wars take place in weak, or even outright failed states. See Ukraine or Syria. Can anyone seriously imagine in any of the Visegrad 4 countries a Crimea or even a Maidan square scenario with snipers shooting both sides?

3.2 Proxy ante portas!

The above paraphrased version of Titus Livius words shows that we face much rather proxies, carrying foreign influence than tanks carrying foreign flags. Yet, proxies are definitely upon us, because kinetic military operations are very unlikely in and between developed countries. Or at least within and around their borders.

Popular unrest, demonstrations and riots just like we see in USA now, form the real threat we face. And these are the most likely to include proxies. Like the presented cases of Gülen and Soros, a seemingly benevolent case can be easily turned into a popular resistance, with the aid of foreign tutors and financial support capable of overturning a democratically elected government. Even if the popular unrest does not get mass support like Black Lives Matter in the US, the number of dissatisfied citizens are enough to keep unrest ongoing for 100 consecutive days with the help of the media.[27]

Russian "active measures" have been thoroughly analyzed, yet still form a challenge to be reckoned with as even the Soviets had been rather successful at employing them. Until recently, Chinese influence usually surfaced in the form of economic cooperation, yet, recently information operations are suspected behind Confucius institute activities and US officials have started an investigation.[28] It is not difficult to see the similarities of events, leading to the closure of British Council offices in Russia. Based on the above, literally any organization can become a proxy or be charged with being one.

3.3   Towards a modern grand strategy

"Grand strategy should both calculate and develop the economic resources and man-power of nations in order to sustain the fighting services. Also the moral resources – for to foster the people's willing spirit is often as important as to possess the more concrete forms of power. Grand strategy, too, should regulate the distribution of power between the several services, and between the services and industry. Moreover, fighting power is but one of the instruments of grand strategy – which should take account of and apply the power of financial pressure, and, not least of ethical pressure, to weaken the opponent's will. ..." – Basil Liddel-Hart

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[27] SELSKY, A.: Time, Portland Protests Continue After 100 Straight Days; 2020.
https://time.com/5886464/portland-protests-100-day/ (downloaded 08 September 2020)
[28] WONG, E.: The New York Times, Politics, U.S. Labels Chinese Language Education Group a Diplomatic Mission, 13 Aug 2018,
https://www.nytimes.com/2020/08/13/us/politics/state-department-confucius-institutes.html, (downloaded 02 September 2020)

In a book, titled Kaigun, about tactics and technology in the Imperial Japanese Navy, 1887-1941, written by Peattie and Evans, a treatise distant both geographically and chronologically from present essay, the authors discuss grand strategy, unreferenced as a system of using all resources of a nation: military, political, diplomatic, and economic for national policy objectives.[29] This old term seems to have gone out of fashion. Some use grand strategy occasionally, but in general security policy related speech it is seldom used. Which is a pity since we have abundant literature on grand strategies defeating an adversary also using a combined, all out approach, even if today only some would like us to believe that this is the case. Instead of obscure and misleading buzzwords, we really should focus on real events. As a starter, the author would like to offer a definition of his own.

"Fourth generation warfare is an activity aimed at achieving clearly defined political goals. In most cases this activity is carried out through non-military means, by one or more organization sharing a common ideology. Generally accepted rules about military activities do not confine their methods, which are applied in one or more areas simultaneously in a way that their effects strengthen or enable each other. To apply this method, the following criteria are prerequisite: adherence to human rights, presence of non-governmental organizations, a globalized economy and a high level of information technological interconnectedness.
Its sub areas are:
- global guerillas;
- information warfare, including cyber warfare;
- economic manipulation, financial maneuvers supported by media;
- ideological, human rights, and other perception based operations;
- or a combination of the above by state and non-state actors alike"[30]

3.4 Conclusion: good governance, responsible citizens and financial, military/police freedom of action are needed

Figuratively speaking, the bear has awaken, the dragon is coming, and the eagle has schizophrenia, while Europé is waiting for Zeus. So we have to take care of ourselves.

While some of the good governance principles are self-explanatory, some look like utopia but until Immanuel Kant's Eternal Peace befalls us, we really should not put on blinkers voluntarily. We should spare ourselves from calling the moving shadow of a tree a 'specter', renaming or rebranding old methods, just because they are more marketable. At last, we really should stop acting like the proverbial shepherd crying wolf too many times until the wolf (or the bear) really appears and it is too late. Interests are real and any actor – be they state or non-state – will use all available means to advance their interests. We can and should do the same. Create our own comprehensive European security strategy, where all aspects of security are taken into account.

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[29]   EVANS, David C. – PEATTIE, Mark R.: Kaigun: Strategy, Tactics, and Technology in the Imperial Japanese Navy, 1887-1941. Naval Institute Press, 2012. pp. 492-493. ISBN: 9781591142447

[30]   SOMKUTI, Bálint: A negyedik generációs hadviselés – az érdekérvényesítés új lehetőségei; NKE HDI doctoral thesis; 2012 http://m.ludita.uni-nke.hu/repozitorium/handle/11410/9570?show=full, (downloaded 02 September 2020)

Using an analogy from the animal world, a combined security approach should look like the fame of the African honey badger or *ratel*. The small sized, distinctive black and silver furred predator is well known for its toughness, fearlessness and creativity. Even though the average size of a ratel is only 80 cm, and its weight is only 10-15 kg, thanks to its thick skin and ferocity, even large predators like lions evade the badger. In one story told in the National Geographic documentary, a ratel has killed an 800 kg caffer buffalo, by bleeding him dry, while hanging onto its nose. One zoo specimen has escaped from its new place, by cleverly using two tree branches, and returned into its old cage, to take it back from the new residents. A lion couple. By the morning, zoo crew has found the heavily wounded, but still breathing ratel beside the lions. The fame of the ratel is characterized by the 2007 case from Basra, Iraq, where *"fake news were spread about the British forces stationing there, to have released a man eating the version of the native ratel to intimidate the population."*[31]

Our system is not without its faults, which nation states or other adversaries can exploit. Yet, we should strive to be a place where no wedges can be driven into the fabric of society. Good Governance, more in detail at the Council of Europe homepage could be a good start. While no single government fits all of its criteria, and some are understood differently in every single country, these 12 ideas form a good start.[32]

There are real interests out there, some confront the democratically elected governments' objectives, and there are those who openly incite public unrest. We don't have to reinvent the wheel. Just use a modern grand strategy and common sense to counter proxies, be they state or other controlled.

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[31] BBC News: British blamed for Basra badgers; 12 July 2007, available at http://news.bbc.co.uk/2/hi/middle_east/6295138.stm (downloaded 02 September 2020)

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REBEKA TÓTH

CYBERSECURITY COMPETITIONS IN CONTRAST OF REAL LIFE

Abstract

The capture-the-flag (CTF) style technical competitions offer an excellent playground for information technology (IT) and cybersecurity professionals to compete. They are highly technical focused, and their challenges differ from the difficulties of the days. Competitors focus on their subtasks to capture the flags, but they don't have to report their results sophisticatedly. They can omit other aspects, like legal and political background, that can influence the work in real life.

Cybersecurity competitions usually require legal, political and communicational skills, besides the technical skills that support the participants' learning more comprehensively. They offer problems to be solved that are closer to real life.

This publication introduces the differences and digs deep into the details of cybersecurity competition, and points out the benefits over the CTF style technical challenges.

*Keywords***:** cybersecurity; capture the flag, competition, cybercrime, digital forensics

Introduction

With the internet came many great inventions which make our every day's life easier. We can effortlessly plan a vacation within seconds or communicate in real time, without ever being present physically. However, there are many risks and concerns arising from our every day's technologies. The currently ongoing pandemic caused by the new type of coronavirus has led to a surge in digitalization, increasing the number of remote working, online transactions, and the volume of online communication, which has also led to an increase in cyber-attacks. This increase means that cybersecurity challenges have become more urgent and complex, as cybersecurity awareness and education have not kept pace with the challenges posed by the increased digitalization during the pandemic. In the current situation, it is even more important to be ready to take on cyber defense tasks, to guarantee the right level of cybersecurity and to ensure the right infrastructure and its protection.

Nowadays, we experience a serious shortage of IT professionals globally, which includes security testers and vulnerability researchers. The last few years have also seen an increase in the number of cybersecurity jobs, with IBM research, showing that

the number of cybersecurity jobs has increased by about 94% from 2013 to 2019.[1] By 2025, the number of unfilled cybersecurity positions could reach as high as 3.5 million vacancies.[2] Although the new national strategies set out the expectations to increase Hungary's cybersecurity capabilities – including offensive capabilities where appropriate – parallel developments in the public sector face a serious challenge, due to the labor-sucking power of the market sector. Moreover, the current higher education system is not yet equipped to produce vulnerability assessment specialists. The development of ICT technologies and the rapid growth of digitalization are expected to increase the skills and expertise of professionals with the right competencies to perform specific tasks (e.g. ethical hacking, cybersecurity analysis, digital forensics).

According to the Oxford Dictionary, the definition of a hacker is: "*a person who uses computers to get access to data in somebody else's computer or phone system without permission.*"[3] This definition may imply that all hackers have malicious ulterior motives, however hackers come in many sizes. There are black hat hackers who are people with malicious intent, but also there are white hat hackers who work day and night to find all vulnerabilities before bad actors can leverage them. The field of cybersecurity changes rapidly, consequently training and studying constitute a continuous and steady process for security professionals. While cybersecurity competitions are becoming increasingly popular, many employers see them as a frivolous game that has no real-life parallels, but rather involves twisted logic and elements not found in real life scenarios. Among the many tasks of these competitions, one type is forensics, which is the focus of this study. In this research, I will contrast the forensic examination and investigation used in real life with the formal and technical requirements expected in a competition. The study highlights the benefits of participating in cybersecurity competitions through demonstrating the value and usefulness of the knowledge gained and helping employers to correctly assess the results of cyber competitions on CVs and professional community portals.

Cybersecurity Competitions

The field of cybersecurity changes rapidly, consequently training and studying constitute a continuous and steady process for security professionals. Despite formal education, cybersecurity competitions are exceedingly popular and effective methods of learning in the field of cybersecurity. There are three main types of cybersecurity competitions: technical, non-technical and mixed. The technical competitions are called Capture the Flags (CTF) and require very thorough technical knowledge. Non-technical competitions are often called strategic challenges, however, there is a common name for this type of competitions as for the CTFs and require legal, media, reporting and high-level cybersecurity knowledge. Mixed competitions usually require both technical and non-technical skills.

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[1] LEASER David: The demand for cybersecurity professionals is outstripping the supply of skilled workers; Retrieved from International Business Machines, https://ibm.co/2Sd3K3h (downloaded 10 January 2022)

[2] MORGAN Steve: Cybersecurity Talent Crunch To Create 3.5 Million Unfilled Jobs Globally By 2021. https://cybersecurityventures.com/jobs/ (downloaded 10 January 2022)

[3] Oxford Dictionary: Definition of hacker; https://www.oed.com/oed2/00101140 (downloaded 27 March 2022)

Capture the Flags

Capture the Flags is an increasingly popular method to challenge security skills, via a gamified competition.[4] CTF events are computer security competitions in which participants – individually or in teams – compete in security-themed challenges for the purpose of obtaining the highest score. Competitors are expected to capture flags to increase their score, hence the name of the event. Flags are usually random strings, or a piece date embedded in the challenges.[5] The formats of the challenges vary greatly, be them a linear puzzle-like challenge, offensive and defensive hacking such as forensics or web application hacking.[6] Most CTFs are usually hosted online, so that professionals could join from all over the world. There are three common types of CTFs: jeopardy, attack-defense and mixed.

Jeopardy-style CTFs have a couple of tasks or challenges to complete in form of questions that are categorized. Categories could be like web application vulnerabilities, forensic, crypto, reversing or anything related to cybersecurity. Teams are rewarded points upon solving and submitting flags. The harder the challenge, the more points can be earned by the participants for solving it. When the game time is over the sum of the points will be finalized and the scoreboard will show the winner. Famous example of such CTF is DefCon Las Vegas.

Attack-defense is another interesting kind of security competition. In this type of CTF every team has their own network, hosts or infrastructure, which includes some vulnerable services. Every team is given time for fixing and patching their systems, to develop exploits and discover attack surfaces against other teams. After the preparation time is up, the organizers will connect the participants of the competition and then the wargame begins. Teams must protect their own services for defense points and try to hack their opponents for attack points. Historically this was the first type of CTFs that existed.

Mixed CTFs contain both jeopardy and attack-defense elements and the form of the mixed competition may widely vary. It could be something like a wargame with special time for task-based elements, like forensics challenges.

CTF competitions and games often touch on many other aspects of information security such as steganography, malware analysis, mobile security or even

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[4] ŠVÁBENSKÝ, Valdemar – ČELEDA, Pavel – VYKOPAL, Jan – BRIŠÁKOVÁ: Cybersecurity knowledge and skills taught in capture the flag challenges; Computers&Security, 2021 March

[5] European Union Agency for Cybersecurity: Capture–The–Flag Competitions: all you ever wanted to know! https://www.enisa.europa.eu/news/enisa-news/capture-the-flag-competitions-all-you-ever-wanted-to-know. (downloaded 10 January 2022)

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information technology auditing. Consequently, teams should have strong skills, broad knowledge, and experience in all these fields.[7]

This type of competition has become more and more popular over the course of past years. Not only private sector organizations and companies organize CTF competitions, but the governmental sector has become more and more active in this regard. The U.S. Space Force had their first Hack-A-Sat competition in 2020, where teams had to hack each other's satellites.[8] Not only companies, but also governmental institutions organize CTFs to both train and to recruit.[9]

The Special Services for National Security – the National Cybersecurity Center – has been organizing an IT security team competition, called the Hungarian Cybersecurity Challenge (HCSC), for which the organizers invite applicants from collectives of up to 3 people. The competition series started in 2019 and has been held every year ever since. The competition is open to all Hungarian citizens over the age of 16. For those who do not have a team, the organizers will help to recruit one or they can compete individually. The technical platform underlying the competition, which is available on the open internet, is developed and operated by Avatao.com Innovative Learning Ltd. During the competition, organizers provide the participants of the competition with so-called Capture the Flag (CTF) type tasks, via the portal. In addition to the technical tasks used in previous HCSC competitions, the competition may also include communication tasks. The competition consists of two rounds (an online semi-final and an in-person final). The best 10 teams from the semi-finals qualify for the final. The final was held as a side event to the CyberSec National Cybersecurity Conference.[10]

The main objectives of the competition are to practice technical skills, provide professional orientation in electronic information security, promote the profession, find new talent, and raise cybersecurity-awareness. The organizer of the competition also aims to provide participants with a competitive spirit and environment, in which they can solve high-level technical problems that will contribute to their professional development. Another aim is to build a professional community, where participants have the opportunity to get to know their fellow competitors.[11] The National Cybersecurity Center even provides weekly tips and a list of platforms that can help participants in preparing for the competition and, as well as to further develop their professional skills, or could *encourage others to apply.[12]*

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[7]   CTF time (2022): What is CTF time? https://ctftime.org/ctf-wtf/ (downloaded 27 March 2022)

[8]   WATERMAN, Shaun: Space Force's Hack-A-Sat Dips a Toe in Digital Waters; https://www.airforcemag.com/hack-a-sat-space-force-digital-waters/ (downloaded 27 March 2022)

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[12] National Cybersecurity Center: Tanulj meg hackelni! – felkészülés a HCSC-re; https://nki.gov.hu/it-biztonsag/tanacsok/tanulj-meg-hackelni-felkeszules-a-hcsc-re/ (downloaded 27 March 2022)

Cybersecurity Competitions

The CTF competitions are mainly highly technical and do not require presenting, communication, legal or political skills even though the field of cybersecurity is in need of these skills as well. Non-technical cybersecurity competitions usually require legal, political, and communicational high-level technical skills. Legal skills are important in these competitions to understand the legalities of the incident and criminal behavior. *"Cybersecurity law, according to Norwich University, is legislation focused on the acceptable behavioral use of technology, including computer hardware, software, the internet, and networks. Cybercrime law, which is another term for cybersecurity law, protects businesses, government organizations and private individuals from criminals unlawfully gaining access to their data and using the data for malicious activities."[13]* Presenting and communication skills are important when explaining the situation and the incident in front of the fictional committee or directorate. These kinds of competitions usually simulate high-level strategic decision making, which involves geopolitics and diplomacy and are often called strategic challenges, where participants must respond to a major cyber incident. The incident could only be affecting a fictional company or could escalate to national, international level, affecting a whole region.

Participants receive an intelligence brief that contains the scenario entities (countries, regions, unions, companies, institutions), the briefing about timeline and key events and the preceding days of the incident, and the relevant appendixes such as newspaper articles, reports, posts and comments on the internet, confidential intelligence agency memos or event logs of the incident. The first intelligence brief usually contains a lot of information, some are relevant and some are not, however, in the beginning it is hard to distinguish what is relevant and what is not. Competitors must create a short summary on the incident and put together a decision-making document, written policy brief and an oral presentation. The written policy brief is usually limited to only 500 words and must contain the key elements and security concerns. The policy brief means to not only test the team's ability to summarize the scenario, but more importantly to explain the confidence levels and reasons behind their analysis.[14] The decision document must be maximum one page that outlines the team's policy response options, should contain about 2-4 options and highlight the best decision. The decision document is only a brief summary of the option and not intended to contain every detail of the incident and recommended actions, it is only to help the judges better understand and follow the team's oral presentation. Oral presentations are usually about 10 to 15 minutes and must outline the possible policy response options and recommendations. After the presentations, the teams receive their scores and feedback, and the proceeding teams are announced. The proceeding teams receive an escalated scenario, with additional intelligence reports, information, articles and details. Based on the newly provided information, the participants must integrate the newly discovered information into their decision documents and present their solutions once again. Subsequently, top teams are announced and receive the final escalation of the scenario to provide their final policy response, recommendation

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[13] SYNYTSKA, Mariia: Who Is a Cybersecurity Lawyer? https://lawrina.com/blog/becoming-a-cybersecurity-lawyer/ (downloaded 25 April 2022)

[14] Geneva Centre for Security Policy: Cyber 9/12 Strategy Challenge 2022.
https://www.gcsp.ch/events/cyber-912-strategy-challenge-2022 (downloaded 27 March 2022)

and the solution for the incident. Usually, the original scenario escalated two or maybe three times during these strategic challenges and each time the number of competing teams is halved.

An example of such a competition is the Cyber 9/12 Strategy Challenge Geneva, which is organized by the Geneva Centre for Security Policy. In this competition, participants respond to a major incident scenario that is affecting a key component of the world's critical infrastructure and services. Scenarios focus on threats to the healthcare system, to the aviation, air traffic control, cybersecurity in the maritime and ocean navigation sector and the international energy industry. Competitors must provide a report of recommendations that consists of national strategies and a collective crisis management response, which considers the capabilities, policies, and governance structures of the UN, the inter-governmental organizations, the individual nations and the other interested entities such as the private sector. As a result, the competition promotes the culture of cooperation and provides better understanding of the geopolitical and diplomatic aspects of cyber incidents.[15] Although the Cyber 9/12 Strategic Challenge does not require technical skill, there are other cybersecurity competitions that represent a golden solution between the technical and the non-technical field. A detailed description of this type of competition is given through the presentation of the Boston White Hat Conference's Cyber Crime Investigation Competition, in the following chapters.

Boston White Hat Conference Cyber Crime Investigation Competition

The competition requires technical (specifically computer forensics) skills, legal and presenting skills, at the same time, just like a real cybercrime investigation. *"The U.S. Department of Justice's Bureau of Justice Assistance (BJA) awarded Boston University Metropolitan College's Cybercrime Investigation & Cybersecurity program a federal grant to support the project titled "Student Computer Forensics and Digital Evidence Educational Opportunities Program" for enhancing current capacities of law enforcement agencies in the areas of computer forensics and digital evidence, in turn leading to improved cybercrime investigations and successful prosecutions, ultimately resulting in reduced cybercrime investigation. The goal of the competition is to develop an effective cybercrime investigation training, test the best practices reflecting the needs of all levels of law enforcement, and establish training guidelines in computer forensics and digital evidence."[16]*

During the competition, each team had three participants (two technical experts, one legal expert) and one coach. The competition's uniqueness lies in its format and in the required skills. The competition was divided into three main parts. Firstly, competitors had to solve a classic CTF, for which they were given eleven hours and after that time, the platform closed and students were no longer able to upload the found flags. During the second part, participants had ten hours to provide a full forensics report, based on the Investigation Pursuant to Section 21(a) which is of the

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15 Ibid.
16 White Hat Conference (2021): Cybercrime Investigation Competition. https://live.bu.edu/whitehat/competitions/cybercrime-investigation/ (downloaded 27 March 2022)

Securities Exchange Act of 1934 Regarding Certain Cyber-Related Frauds Perpetrated Against Public Companies and Related Internal Accounting Controls Requirements.[17] Participants were awarded fifty points for the CTF and thirty points for the report. Based on the results of the first two parts, the top three were given a chance to continue with a competition. During the third part of the competition competitors had 15 hours to prepare for the Mock Trial and present their case in front of the Jury. Mock Trial is a presentation in which students simulate a real trial. As most cybersecurity competition, the Boston White Hat Conference Cybercrime investigation competition also had a well-rounded background story. Background stories could provide additional information that could be useful for the competition, or it is just to make the competition more colorful and fun.

> ***Competition background story***
> ***The competition background story was the following: In early January 2021, Mr. CIC, a special agent in the FBI, learned that an individual only known as Mr. Evil Noodle is allegedly responsible for several of the most expensive computer intrusions of all time.***

Mr. Evil Noodle has a background in computer programming for the financial industry. In addition, Mr. Evil Noodle has also been suspected of being a member of a state-sponsored hacking organization known as "The Evil Lizards". The uncovered attacks that this organization conducted have not only affected tens of thousands of computer systems across the world, but these attacks have also resulted in over one billion dollars in illegal earnings. According to allegations, *some of the various illegal activities and crimes*, in which Mr. Evil Noodle and the organization he is a part of may be involved; include:
- *Illegally accessing computer systems without authorization;*
- *Phishing & ransomware attacks targeting financial institutions across the world that have collectively stolen over one billion dollars;*
- *Illegal drug trafficking;*
- *Illegal guns and weapons sales.*

As illustrated by the information presented by Mr. CIC, *a federal arrest warrant* has been issued for Mr. Evil Noodle, within the United States *with the following charges:*
- *Suspicion of conspiracy to commit wire fraud;*
- *Suspicion of conspiracy to commit computer-related fraud;*
- *Suspicion of computer intrusion.*

The investigation with a computer was seized by the Department of Justice, which had live forensics copy in the cloud. Competitors also have also been provided an electronic list of potentially relevant U.S. penal codes to aid them with their investigation.

Participants have been provided with the credentials have access to the suspect machine to conduct a live analysis for the purpose of determining if sufficient

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[17]   SECURITIES EXCHANGE ACT OF 1934 Release No. 84429 / October 16, 2018. https://www.sec.gov/litigation/investreport/34-84429.pdf (downloaded 27 March 2022)

evidence exists to support the pursuit of charges against Mr. Evil Noodle for any or all of the above-mentioned crimes.

Digital Evidence

The first part of the competition was an 11-hour long traditional CTF game, during which participants had to find and submit all existing evidence. The competition started with a windows 10 machine live on the cloud, the guest username and password was provided, however competitors needed administrator level access for the live analysis. Privilege escalation is an attack to gain illegally elevated access to further resources on the host by exploiting a vulnerability, design flow or misconfiguration.[18]

After participants have gained administrator level access, the hunt for evidence has begun. My team used Autopsy to have a structured look over the computer and its content. Autopsy an end-to-end open-source software for digital forensics which was built by Basis Technology. Autopsy includes core commercial forensics tools and offers an efficient hard drive investigation which is fast, thorough and efficient.[19] Autopsy scan takes a long time since it is scanning the entire computer for hidden, deleted and existing files. The files discovered by the software are divided into categories such as videos, images, texts, or categories like interesting files, deleted files or hidden folders. This categorization makes the investigation easier and helps the investigator to focus on relevant information.
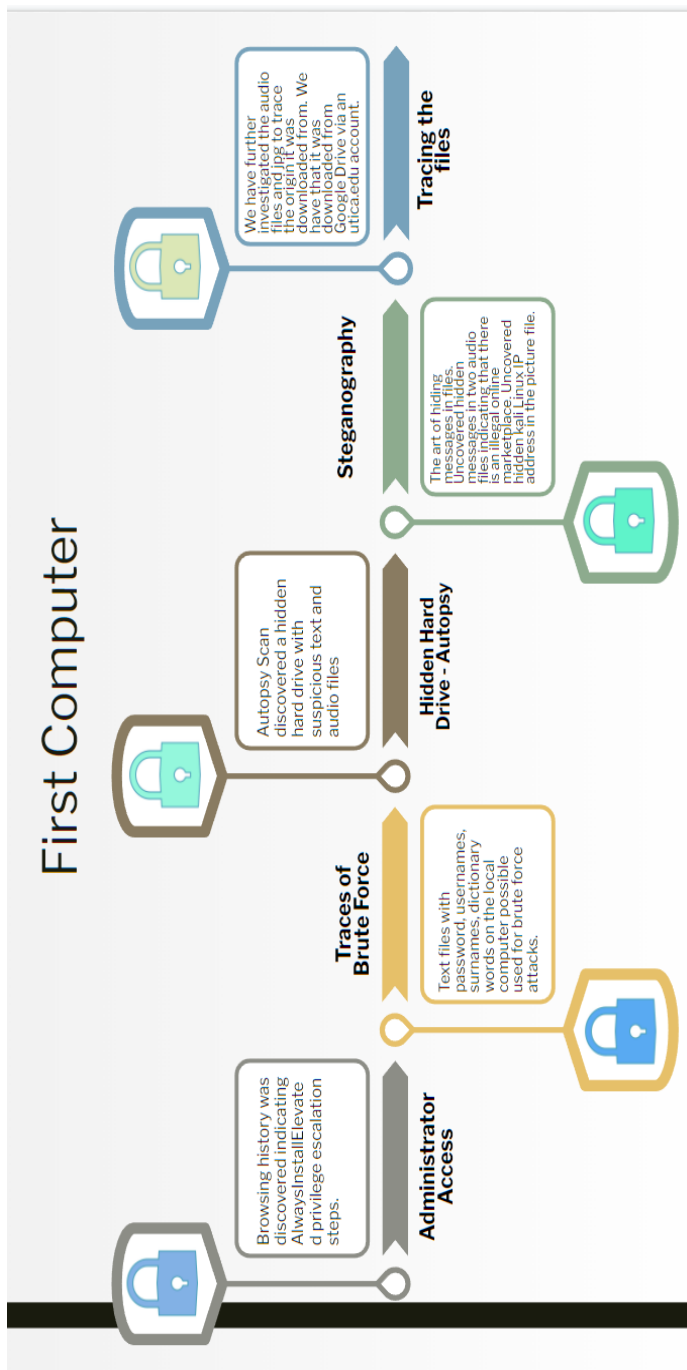
On the Windows computer, our team uncovered several incriminating and admissible evidence such as traces of brute force, hidden hard drive, an image and two audio files with steganography. The timeline for the uncovered evidence can be seen below:

[18] YAMAUCHI, Toshihiro – AKAO, Yohei – YOSHITANI, Ryota – NAKAMURA, Yuichi: Additional kernel observer: privilege escalation attack prevention mechanism focusing on system call privilege changes; International Journal of Information Security, 2021/20. pp. 461-473.

[19] Basis Technology; Autopsy Digital Forensics, https://www.autopsy.com/ (downloaded 15 February 2022)

First Computer

Administrator Access

Browsing history was discovered indicating AlwaysInstallElevated privilege escalation steps.

Traces of Brute Force

Text files with password, usernames, surnames, dictionary words on the local computer possible used for brute force attacks.

Hidden Hard Drive - Autopsy

Autopsy Scan discovered a hidden hard drive with suspicious text and audio files

Steganography

The art of hiding messages in files. Uncovered hidden messages in two audio files indicating that there is an illegal online marketplace. Uncovered hidden kali Linux IP address in the picture file.

Tracing the files

We have further investigated the audio files and jpg to trace the origin it was downloaded from. We have that it was downloaded from Google Drive via an utica.edu account.

Figure 1 Evidence found on the first investigated computer
(Author's own edition)

Several files with steganography were found hidden on the computer. Steganography is the art of hiding other files, messages, or a piece of data in another file. With the help of steganography, it is possible to hide secrets in a picture, video, pdf or even in an audio file without it ever being visible.[20] There are many well-known tools that can easily extract the hidden data which helped us uncover a hidden IP address, however the industrial best practices did not extract the secret messages hidden in the audio files. Consequently, we had to create our own Python script to reveal the hidden messages. Python is a programming language that is widely used by security professionals and one of the best and easiest programming languages for steganalysis.[21] The uncovered IP address and messages led to the second computer.
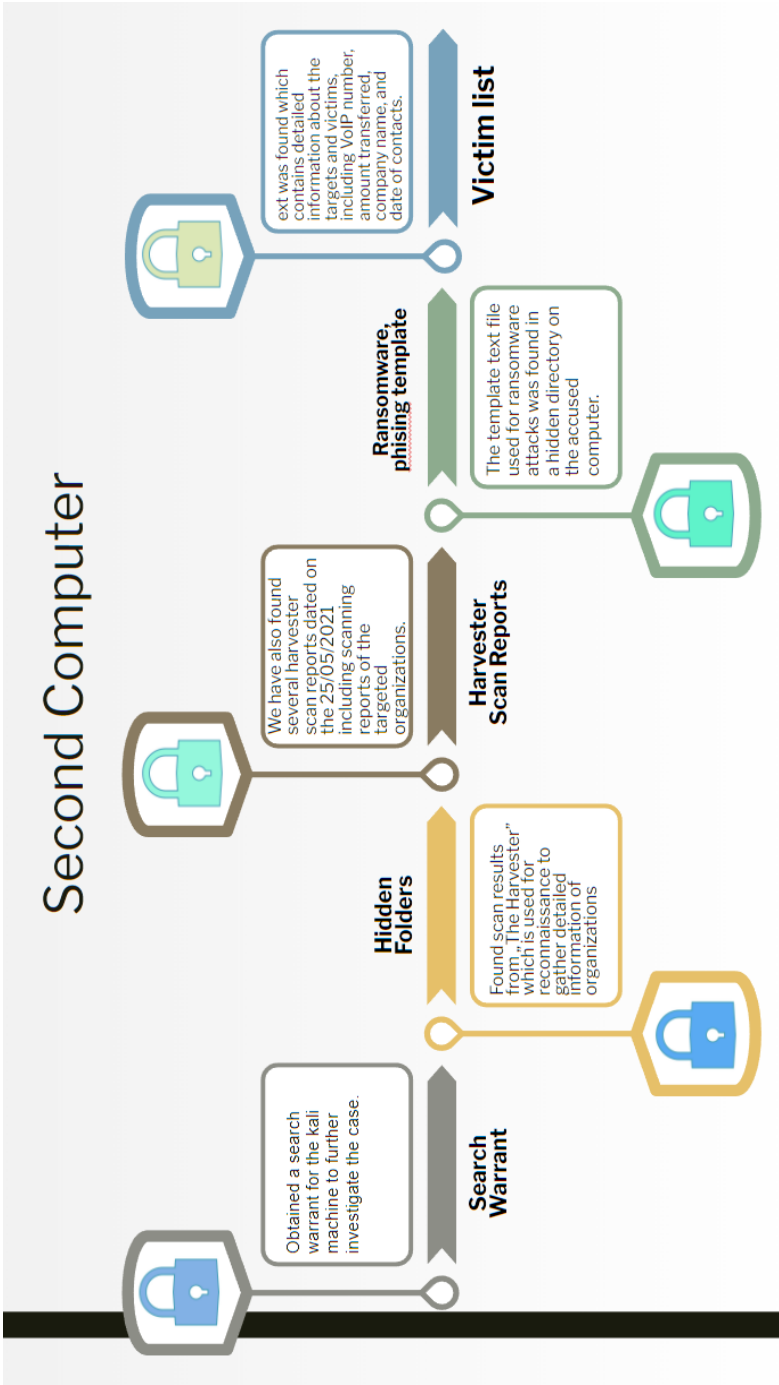
The second computer was a Kali Linux which, just as the previous computer, was live in the cloud. To be able to investigate and collect admissible evidence, participants needed a search warrant on the second computer. Kali Linux is an open-source operating system that is used for penetration testing because it comes with various tools, software and built-in functionalities that makes penetration testing easy. [22] Our team has issued a search warrant for the previously found Kali Linux machine to gather further evidence. After the search warrant was authorized, the hunt continued for admissible evidence. The timeline of the unveiled evidence can be seen on figure 2 below.

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[20] STANGER, James: The Ancient Practice of Steganography: What Is It, How Is It Used and Why Do Cybersecurity Pros Need to Understand It; https://www.comptia.org/blog/what-is-steganography (downloaded 15 February 2022)

[21] KORDOV, Krasimir – VALCHEV, Georgi: Video steganography with steganalysis; Mathematical and Software Engineering, 2019/1. p. 15.

[22] LU, He-Jun – YU, Yang: Research on WiFi Penetration Testing with Kali Linux https://www.hindawi.com/journals/complexity/2021/5570001/ (downloaded 15 February 2022)

Second Computer

Search Warrant — Obtained a search warrant for the kali machine to further investigate the case.

Hidden Folders — Found scan results from „The Harvester" which is used for reconnaissance to gather detailed information of organizations

Harvester Scan Reports — We have also found several harvester scan reports dated on the 25/05/2021 including scanning reports of the targeted organizations.

Ransomware, phising template — The template text file used for ransomware attacks was found in a hidden directory on the accused computer.

Victim list — ext was found which contains detailed information about the targets and victims, including VoIP number, amount transferred, company name, and date of contacts.

Figure 2 Evidence found on the second investigated computer
(Author's own edition)

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On the second computer further hidden folders and files were found which contained gathered email addresses, employee and employer data, ransomware templates, a database containing transactions, wire fraud details and information about the victims. In addition, on the kali machine we have found further proof for an illegal marketplace in a txt file referring to analytics to do regarding the store incomes and highest selling products. The previous evidence was in a hidden folder obfuscated in a text file.

Our team has also discovered multiple theHarvester scan reports and scan results in the hidden folders indicating that the attacker conducted reconnaissance on the targeted organization. theHarvester is an open source, free and easy to use software that allows users to gather openly accessible information like email address or company employee names that can be used for phishing or other targeted attacks.[23] Scan reports and results included emails, employees, and web-content discovery. Our team also discovered a database file which included further information on the targeted organizations collected by theHarvester, victim information and ransomware amounts.

Our team has discovered a dark-net market store link, a username and a password hidden among other seemingly harmless files. We immediately issued a search warrant for the dark-net store to be able to gather admissible evidence.

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[23] Kali.org: theharvester; https://www.kali.org/tools/theharvester/ (downloaded 15 February 2022)

Darknet Store

Discovery of Darknet Store
Discovered the address of the Darknet store in the a ransomware template file (refer to evidence #8)

Browsing
Visited the website and found an illegal online for drug and gun commerce

Search Warrant and Admin access
Despite having the url for the store in the ransomware also the name of the store **The Evil Noodle Guns & Drugs Shop** indicated the relation between the accused and the store

Admin Access
We have further investigated a site and found an admin panel login where the password could be easily guessed

Collecting reports
Upon gaining admin access we have inspected several reports and dashboard to obtain information about sellings and customers

Figure 3 Evidence found on the dark-net store
(Author's own edition)

During the review of the computer and virtual machines owned by Mr. Evil Noodle, we found that all evidence of various illegal activities were covered thoroughly, it required extensive digital forensic review to uncover our findings. All the incriminating documents were obfuscated by being stored on a hidden drive and also on a previously unknown Kali Linux machine. A present vulnerability allowed us to escalate our user privileges to administrator level, with this we were able to use the automated forensic scanning tool Autopsy to find several seemingly unimportant hidden files. Through further review with decryption and hex code review techniques we found important pieces of information which led us to believe Mr. Evil Noodles have ties to the Darknet marketplace evil.metacorp.us and that he was also using a separate Kali Linux machine. With later access to the Kali machine, we were able to identify detailed documentation of large-scale ransomware attacks on the financial sector and illegal commerce. Through the review of the hidden documents on the Kali machine we identified evil.metacorp.us where Mr. Evil Noodle has administrator level privileges. This site was used as a marketplace for illegal drug and firearm trade. From the available financial reports on the ecommerce site, we estimate a revenue of over 65 million USD while from the ransomware attacks the estimated revenues are more than 1,750 million USD. According to our forensic review we determine that sufficient evidence exists to support the pursuit of charges against Mr. Evil Noodle for all the above-mentioned crimes.

Admissibility of digital evidence in court

In our digital era, cybersecurity affects every aspect of our personal and public life. These could be our work from the office or home office, shopping online or banking. All these aspects today are digitalized and moved as data in the global digital system. What is more, the currently ongoing pandemic caused by the new type of coronavirus has led to a surge in digitalization, increasing the number of remote working, online transactions, and the volume of online communication. This booming effect in digitalization has also led to an increase in cybercrimes such as phishing, vishing (voice phishing), malwares and fake news. Thereupon digital forensics plays a primary role in the fight against cybercrimes. Consequently, it is critical for law enforcement, national security institutes, and courts to develop a well-rounded strategy for such investigations.[24] The Supreme Court in Penderhill, BC, United States, has already addressed that courts must keep up and be appropriately responsive to the technical changes.[25]

Collecting evidence for digital forensics does not differ much from collecting evidence for a traditional crime. The process includes collecting, analyzing, and reporting on evidence which is critical for solving computer related crimes. The acquisition of digital evidence should be performed in a way that ensures admissibility during legal proceedings. The most important criteria for collecting evidence are the following:

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[24] Lexology: Admissibility of digital evidence in court; https://www.lexology.com/commentary/litigation/cyprus/elias-neocleous-co-llc/admissibility-of-digital-evidence-in-court (downloaded 10 January 2022)

[25] Penderhill Holding Limited ao v Ioannis Kloukinas, Civil Appeals 319/11 and 320/11, 13 January 2014.

- should never be altered and all collected evidence should be hashed;
- performed steps should be recorded in such way that a third party could easily repeat it from the audit trail;
- only competent experts should examine and have access to the original data;
- besides technical experts a legal expert should be present, who make sure that the law and the performed steps are adhered.[26]

Digital evidence is only admissible when it is offered to prove the facts of a case and it does not violate the Constitution or other legal statutes.[27] The most important rule to mind during investigation is that only relevant evidence is admissible and irrelevant evidence under no circumstance can be admissible.[28] For that reason, it is up to the court to decide whether the presented evidence is relevant, safe, and suitable to be admitted or not. In spite of that, sets of legal tests are determined by the judge to assess the relevance and suitability of the presented evidence. The steps are the following:

- Reliability: Evidence should always be examined for traces of tampering such as insertion, deletion, modification, or any other changes.[29]

- Illegally obtained evidence: any evidence that was obtained in violation of the Constitution is impermissible. For example, IP addresses may be denied to be admissible due to the fact that it is connected to privacy, which is a human right that is protected under the Constitution.[30]

- Integrity: Evidence must stay unchanged, and authenticity must be proved. For this reason, all evidence must be hashed, and hashes must be compared to prove that no evidence has been tampered with. "*The process of translating a unique given key into a code is called hashing.*"[31]

- The rule of best evidence: Only the most suitable evidence should be presented in court. Normally the courts accept duplicates, if it's proved that the original evidence has been destroyed or lost.[32]

- Search warrant: Evidence obtained without a search warrant is inadmissible in court.

- Scientific evidence and process: used tools, methods, technologies, techniques, and relevance of the evidence can be challenged in court.

Digital Forensics should help investigators to estimate, describe and project the level of certitude that is underlying their conclusions to help factfinders determine what weight to attach to the issue. Unfortunately, the field of digital forensics does

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[26] Lexology: Admissibility of digital evidence in court.
[27] ILIADIS, Takis – SANTIS, Nicolas: Evidence Law; Hippasus Publishing, 2016. p. 66.
[28] POWLES, Steven – WAINE, Lydia – MAY, Radmila: May on Criminal Evidence; Sweet&Maxwell, 31 Dec. 2015 ISBN: 9780414056572
[29] Metaquotes Software Ltd ao v Dababou; Civil Appeal E324//2016, 14 November 2018.
[30] SHIAMISHIS, Demetris v The Police, 2011/2. p. 308.
[31] BUTTICE, Claudio: Hashing. https://www.techopedia.com/definition/14316/hashing-cybersecurity (downloaded 2022.03.17.)
[32] Gold Seal Shipping Company Ltd v Standard Fruit Company (Bermuda) Limited, 2000/1. p. 1552.

not currently have formal mathematical algorithms or statistical equations to evaluate levels of certitude associated with the digital evidence.[33]

Cyber Competitions real life takeaways

In contrast to these CTFs, in the real world (or rather in the public sector, as an IT or cybersecurity professional), the expectations differ. CTF competitions require skills like steganography, cryptography, or misc, while real life jobs prefer skills like operating systems fundamentals, system administration, network security, incident response, low level protocol and packet analysis, scripting and/or programming languages or even require at least a bachelor's degree in the field of IT.[34] However experience on online CTF platforms are always an advantage but not a requirement.[35] The reason for the difference is that a professional penetration test is conducted differently. The main aim of a penetration test is to discover as many vulnerabilities and findings as possible, in order to help to understand the level of threat and risk and to determine the necessary remediation steps.

For that reason, there are many vulnerabilities and findings that are unlikely to lead to direct system compromise, however in a CTF competition these threats will often be overlooked or even ignored because the main goal of a CTF is to gain system level access to a certain host or network. During a professional penetration test no vulnerability should be overlooked whether it is a low or a high finding, as it could lead to disastrous consequences. For example, if a low-level vulnerability such as cookies without secure flags were discovered during a CTF, it most likely would get ignored, as it is not going to help competitors to achieve their primary goal of capturing the flag.[36]

The Boston Cyber Crime Investigation Competition, despite its short length, gave a fairly real-life experience. The competition followed the steps of a real cybercrime investigation, and all digital evidence must have met the requirements of admissibility. Competitors had to issue a search warrant upon finding newly discovered electronic devices and every investigated evidence had to be hashed. Furthermore, participants had to create an investigation report, that is, to be used in court, which had to include the details of the case, actions taken, and evidences with their details such as evidence type, hash, significance and U.S. penal code or rationale.

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[33] CASEY Eoghan: Digital Evidence in the Courtroom; Chapter 3 p. 20.
[34] National Security Agency: Cyber Network Professional – Offensive/Defensive Operations – Entry to Experienced Level; https://apply.intelligencecareers.gov/job-description/1178093 (downloaded 27 March 2022)
[35] National Cybersecurity Center: Sérülékenységvizsgáló / Ethical hacker karrier; https://nki.gov.hu/intezet/tartalom/karrier-lehetosegek/#whitehat (downloaded 27 March 2022)
[36] CALDEIRA, Steve: CTF Vs Real Penetration Testing. https://www.triaxiomsecurity.com/ctf-vs-real-penetration-testing/ (downloaded 27 March 2022)

Conclusions

Cybersecurity competitions are an increasingly popular phenomenon; however, many employers see them as a frivolous game that has no real-life parallels. This research has contrasted the forensic examination and investigation used in real life with the formal and technical requirements expected in a competition. The study is highlighting the benefits of participating in cybersecurity competitions, through demonstrating the values and the usefulness of knowledge gained, and helping employers to correctly assess the results of cyber competitions on CVs and professional community portals. There are many researches on the cybercrime investigation and on the capture of the flag competitions; however, not everybody understands their beneficial impact on our everyday jobs. To be effective in a cybersecurity role, there are required and implied skills such as creativity and out of the box thinking to find new vulnerability surfaces and a deep and thorough understanding of the tested application and of the underlying infrastructure. Cybersecurity competitions are a great way to enhance creativity, out of the box thinking and to force competitors to better understand the system they are working on. The aim of this research is to demonstrate the values and the gained knowledge that can be applied in real life, through participating in cybersecurity competitions to help employers and employees understand the usefulness of these competitions. Hopefully as gamified learning is getting increasingly popular, employers and the educational system will see the benefits of cybersecurity competitions and will integrate this gamified way of learning into their learning process. There are already some competitions that are targeting university or even high school students with educational purposes, and the number of these competitions are increasing every year. Cybersecurity competitions with educational purpose not only could target students, but also employees, in the form of intercompany competition, where businessmen could compete against each other, but also could learn from each other.

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ISTVÁN BANDI

HISTORY OF THE MOLDOVAN SECRET SERVICES FROM 1944 UNTIL THE FORMATION OF NATIONAL SPECIAL SERVICES

Abstract

This study undertakes a brief historical overview of the secret services of the Moldovan state, in the period from the Soviet invasion in 1944 to the formation of the national specialized services. At the end of the Second World War, Soviet troops once again flooded the territory of Bessarabia, and Moldova became a part of the empire for decades. The historical approach to the secret service of the member republics of the Soviet empire described an extremely regular trajectory. Thus, with the passage of the Soviet front in Bessarabia in 1944, the first action of the Soviet security structures was the Sovietization of the old/new territory. Within the designated chronological boundaries, in the next era of the organization's history, we can clearly speak of the Moldavian NKGB, and later of the Chisinau KGB, established on the basis of Moscow's model.

*Keywords***:** Moldavian SSR, Bessarabia, Moldavian NKGB/KGB

Historical background

From the point of view of the organizational history of the Moldovan secret services, the question of the political system was decisive, i.e., whether Moldova was characterized by a monarchical, dictatorial or democratic system. The issue of statehood was also a fundamental aspect for the secret service, that is, which state the mentioned geopolitical entity belonged to, Romania or the Soviet Union, or was on the path to independence.

During the peace settlement around Paris that ended the First World War, England, France and Italy recognized Moldavia as belonging to Romania, but the United States of America and Japan refused to recognize this. Even after its international recognition in 1922, the Soviet Union did not accept Moldavia as belonging to Romania, and even created an autonomous territory of the Moldavian SSR, with its centre in Tiraspol on the left bank of the Dniester, in the territory of the Ukrainian SSR. Its existence represented a constant security risk for Bessarabia and the newly created Kingdom of Romania. With the signing of the Ribbentrop-Molotov Pact in August 1939, the Moldavian territories annexed to Romania after the First World War came under Soviet authority. However, it was only at the end of June 1940 that the bodies of the Soviet state administration, including the NKVD, moved in and began to eradicate the traces of the former empire. In a short time, the administration of the Moldavian SSR, starting from the left bank of the Dniester, reached the left bank of the Prut River. In addition to the military administration, the NKVD was established in the months of July-August 1940, with its headquarters in Chișinău, its

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central and rural structures, whose head was General Nikolay Sazakin[1] as People's Commissar of Internal Affairs.

The state security leadership in Moscow regarded a part of the Romanian-speaking population of Moldova as a serious risk factor, which is why they entrusted those who sympathized with Romania to Beriya's close colleague, Sazakin. The fact of mass arrests and deportations carried out in a short period of time are connected to the name of the extremely proactive and equally rude head of the NKVD[2]. A year later, as part of Operation Barbarossa, which began on June 22, 1941, the combined German-Romanian forces reached the banks of the Dniester within a month, so the Soviet state security agency, operating in the Moldavian SSR, also suspended its previous area-specific activities. During the mentioned short period of time, General Sazakin had a role in a more serious organizational restructuring attempt, the aim of which was to abolish and merge the parallel existence of two independent local organizations, the NKVD (People's Commissariat of Internal Affairs) and the NKGB (People's Commissariat of State Security). With the involvement of the Romanian security/secret service agencies, the previous network structures disintegrated.[3]

Shortly before the start of German operations against the Soviet Union, the Secret Intelligence Service (Serviciul Secret de Informatione - SSI) organized its agent networks through its centres along the Prut, preparing them for the invasion of Bessarabia. Before the start of the invasion, two months were available to set up the agency, so it was a great professional challenge to set up a mobile operational organization and meet the requirements of intelligence, counter-espionage, counter-sabotage, and counter-terrorism. The agent networks were built mainly on people from Bessarabia and Northern Bucovina.

Based on the decree of the Presidency of the Romanian Council of Ministers and the Marele.Stat.Major. (Chief of Staff), the Mobile Group was set up, which was a separate unit from the SSI and was organically connected to the higher military units sent to war. Its main tasks were the following: 1) to obtain information about the

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[1] Nikolay Styepanovich Sazakin (1910-1985) was an employee of the Soviet state security agencies from 1930, and from 1936 he served in the NKVD organization in Stalingrad. From 1938 he was the deputy head of the NKVD Central Secretariat, from 1939 the Molotov region, then from 1940 to 1941 the People's Commissar of Internal Affairs of the Moldavian SSR, from 1943 the head of the 3rd department of the NKVD, in the same year he was appointed the deputy head of the 2nd Directorate of the NKGB. From 1944, he moved to Estonia, first as a commissioner of the NKVD and then of the NKGB. From 1946, he was the deputy head of Department C of the NKGB. He was the deputy minister of state security of the White Russian SSR from March 1947, and then in May 1947 he was the deputy chairman of the Council of Ministers of the Soviet Union. After the death of I. V. Stalin, he returned to work in the Unified Ministry of Internal Affairs of the USSR and held the following positions: Between 1953 and 1954, he was the head of the 4th Directorate of the Ministry of Internal Affairs of the USSR and a member of the Collegium of the Ministry of Internal Affairs of the USSR, lieutenant general, in 1954 he was deprived of his rank. Later, he worked in the Ministry of Medium Engineering of the USSR.

[2] ŞEVCENCO, Ruslan: Istoria serviciului secret a Moldovei (1940-2007) şi comentariul asupra cărţii lui T.Botnaru şi A.Ganenko, http://statulmoldovenesc.blogspot.com/2011/04/istoria-serviciului-secret-moldovei.html (downloaded 30 November 2020)

[3] Ibid.

fighting Soviet military formations; 2) counter-sabotage, terrorism and espionage of the Romanian forces operating on the Eastern Front; 3) obtaining Soviet military documents found on the battlefield (orders, agent documents, maps, instructions, brochures, regulations, telegrams, etc.) The Mobile Groups' employees were tasked with interrogating Soviet prisoners of war, deserters and partisans. The obtained data and information materials must be submitted in the form of reports to the head of the I. Intelligence Department for analysis, synthesis and use. It is clear that the SSI unit sent to Bessarabia carried out precisely regulated and 'chemically clean' intelligence activities.[4]

After the operations for the recapture of Bessarabia were completed (July 26, 1941), SSI headquarters No. 2 was set up in Chișinău, with two sub-units, as well as the residencies and sub-centres belonging to them, which covered the counter-espionage and intelligence of the entire territory of Bessarabia.[5] At the end of 1943, when the Soviet occupation of Bessarabia was approaching, the SSI headquarters in Chișinău attempted to build and leave behind an extensive network of agents in order to obtain up-to-date information about the mentioned areas, even after the Soviet invasion.[6] After the capitulation of Romania on August 23, 1944, the Soviet military intelligence and counter-espionage bodies managed to seize a large part of the archives of the Bessarabia headquarters of the Romanian secret services and in a short time to identify the agency that remained between the Dniester and the Prut.[7]

The organizational structure of the Ministry of State Security and the Ministry of the Interior between 1944 and 1950

In August 1944, after the crossing of the front, in Chișinău, the structures that already existed in the Moldavian Soviet Socialist Republic were re-established and the Soviet state security and internal affairs bodies were organized. Major General Mihail Markeyev[8] was appointed the local head of the NKVD (People's Commissariat of Internal Affairs), while Iosif Mordoveț[9] was appointed the head of the People's

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[4] Lıssıevıcı, Ion: Amintirile unui fost svetzer în Serviciul de Informationi al stalat, (Memoirs of a former employee of the State Intelligence Services) In Troncotă Cr. Glorie și tragedii. Momente din istoria Servicilor de información și counterinformații române pe Frontul de Est (1941-1944). (Glory and tragedies. Moments from the history of the Romanian intelligence and counterintelligence services on the Eastern Front (1941-1944) București: Nemira, 2003, p. 57.

[5] Moraru, Pavel: România și bătălia informatiilor entre Prut și Bug (1940-1944). (Romania and the intelligence battle between Prut and Bug. 1940-1944) București: Editura Militară, 2011, pp. 105-119.

[6] Ibid. pp. 247-269.

[7] Ibid.

[8] Markeev, Mikhail Ivanovich (1905-1970). In 1934, he served in the Personnel Department of the Saratov Territorial Directorate of the NKVD. With the rank of centurion and at the NKVD's General Directorate of Economy, the outbreak of war comes. Head of the NKVD Directorate of the Ivanovo region until the beginning of 1944 with the rank of colonel. From April 1944, he was the Minister of the Interior and People's Commissar of State Security of the Moldovan SSR with the rank of brigadier general. From 1946 to 1949, he was the Minister of the Interior of the Mari SSR in the rank of major general.

[9] Mordoveț, Iosif Lavrentyevich (1899-1976) Carrier and slaughterhouse operator before the First World War. He served the First World War as a private in the Red Guard regiment. In the twenties, he worked as an agricultural worker and union secretary. A member of the

Commissariat for State Security (NKGB). The old/new organization regularly conducted raids in 9 counties of Moldova and arrested thousands of hostile and "counter-revolutionary elements": 7,696 persons were "discovered" in Chișinău alone.[10]

With the end of the war, the leadership of the Soviet armed forces wanted to retain its primary role in the ranks of violent organizations, but the security and internal affairs agencies wanted to reduce the disproportionately large role of the military agencies. In 1946, major organizational changes were introduced in the Moldavian SSR, so the NKGB, i.e. the State Security Committee, became the Ministry of State Security (MGB), while the People's Commissariat of Internal Affairs (NKVD) became the Ministry of the Interior (MVD)[11], headed by Feodor Tutushkin[12]. In 1946, SMERSh came under the Ministry of State Security (MGB) and its III. It continued to function as its General Directorate. In 1947, the Directorate of Militias, as well as the armed forces (combat) department, were transferred from the Ministry of the Interior to the Ministry of State Security. The guard personnel of the border guard and the railway security units remained with the interior. The battle between the internal affairs and the security agencies was actually a struggle for the same status as the military forces.[13]

SZKP from 1929, he began his service in 1930 as the head of the Dolinsky regional department of the GPU, then from 1931 to 1935 he was the head of the GPU-NKVD regional department of the Dnipropetrovsk region. From 1935 to 1938, he was the head of the Kamenets-Podolsk NKVD district, and from 1938 to 1940, the head of the directorate, with the rank of first lieutenant. In 1940, he moved to Moldova, where he first replaced the People's Commissar of Internal Affairs and then the People's Commissar of State Security. Until 1944, he served in various front sections of the NKVD and counterintelligence commander, with the rank of major general. From 1944 to 1953, People's Commissar of State Security of the Moldavian SSR, Minister of the Interior between 1953 and 1954, and Chairman of the KGB of the Moldavian SSR from 1954 to his removal in 1955. He was retired in 1956. http://shieldandsword.mozohin.ru/personnel/mordovez_i_l.htm (downloaded 30 November 2020)

[10] CRUDU, Lidia: Consideratii privind politica de selectare și promovare a cadrelor în RSS Moldovenească, in Cugetul. Revistă de istorie și cultură, Chișinău, 2007/1, p. 29.

[11] MUNTEANU, Sergiu – OHLADCIUC, Eduard: Formarea și activà Ministereleor de Securitate și de Interne în RSSM, Cohorta 2013/2, p. 86.

[12] Feodor Tutushkin (1900-1959) was appointed deputy head of the NKVD of the Leningrad military district in 1940, in the same year he was transferred to the NKVD commander's seat of the Odessa military district. Between 1942 and 1943 he was the commander of the NKVD in Moscow. He was the commander of the Moscow military district of the SMERSh - Special Method Counterintelligence - military counterintelligence unit set up in 1943. In 1943 he was promoted to major general and in 1944 to colonel. From 1946 to 1951, he headed the Ministry of the Interior of the SSR of Moldova. He died in 1959.

[13] On May 30, 1947, on the basis of the decision of the Council of Ministers of the Soviet Union, an intelligence committee was set up working alongside the Council of Ministers. The Foreign Intelligence Directorate No. I of the MGB, which had been set up a year earlier in 1946, and the General Intelligence Directorate of the Armed Forces, the GRU, were assigned to its organizational framework. This intelligence committee was assigned to the Ministry of Foreign Affairs of the Soviet Union in 1949. At the same time, the MGB of the Ministry of State Security regains the task of counterintelligence for Soviet objects operating abroad. Source: Foreign intelligence in the post-war years. on the official page of SVR. http://svr.gov.ru/history/stage07.htm (downloaded 30 November 2020)

The elections held in February 1947 were closely monitored and controlled by the newly organized state security agencies, in accordance with central instructions from Moscow. Mood reports were prepared about the participants in the elections and the course of the elections, because a significant part of the population did not trust the representatives of the Soviet government. The internal affairs and state security bodies were also tasked with ensuring the financial reform. 1,815 employees of the Ministry of the Interior took part in this operation supervising the currency exchange that took place in December 1947.

The central measures reached the administrative border states of the Soviet empire in a short time. Thus, on December 31, 1950, based on the decision of the Political Committee of the Central Committee, the Council of Ministers established the College of the Ministry of State Security (MGB). A year later, the Ministry of the Interior (MVD) College was also established. The Colleges were established in the Moldavian Soviet Socialist Republic (SSR) in January 1955.[14]

The KGB era (1954-1991)

In 1952, the debate on the priority of the military and the internal affairs administration was settled, recording that the SZKP KB presidency decided that the party supervision of the MGB should be strengthened, which, however, was not realized in practice at that time. Shortly after Stalin's death, on March 15, 1953, the Law on the Organization of the Ministries of the Soviet Union entered into force, on the basis of which the MGB and MVD were merged into a unified Ministry of the Interior (MVD). In Moldova, the MVD is headed by the former head of state security, Iosif Mordoveţ,[15] and his deputy will be the former head of internal affairs, Pyotr Kulik. As a result of Khrushchev's de-Stalinization, the XX. those responsible for the Stalinist crimes condemned at the party congress had to be found. Thus, the head of state security in Moldova was accused of illegal arrests and measures. A part of the old-new leadership must be sacrificed: those who took part in the deportations and the execution of mass violent measures, thus laying the foundation for the further operation of the system. The next stage of the major reorganization that began in 1953

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[14] Tomozei, Tudor: Organele abilitate cu aplicarea legii sub controlul autoritatilor civile: istorie si actualitate; in Studii criminologoce si juridice privind criminlitatea. II Yearbook. Academai de Politie "Stefan cel Mare" Chişinau, 2001, p. 183.

[15] Iosif Mordoveţ (Iosif Lavrentyievich Mordovets) (1899-1976) was appointed head of the GPU department of the Dolinsky region (Ukrainian SSR) in 1930, between 1931-35 he was the head of the Magdalinovskiy regional department of the GPU-NKVD (Dnipropetrovsk region), 1935-1938 – the NKVD head of the district department of Gorodok (Kamenets-Podolsk district/region), 1938-1940 – head of the 2nd department of the UGB, then the directorate of the NKVD Kamenets-Podolsk region. 1940-1941 – Deputy People's Commissar of Internal Affairs of the Moldavian SZSZK, then People's Commissar of State Security. 1941-1942 – deputy head of the NKVD special department of the Southern Front, head of the NKVD special department of the North Caucasus Front, 1942-1943 – head of the NKVD special department of the Black Sea Forces Group, 1943-1944 – deputy head of the counterintelligence directorate of the Transcaucasian Front, the 2. deputy head of the counter-reconnaissance directorate of the Ukrainian front, 1944-1953 – People's Commissar of State Security of the Moldavian SSR, 1953-1954 – Minister of the Interior of the Moldavian SSR, 1954-1955 – Chairman of the KGB under the Ministerial Council of the Moldavian SSR, 1955-1956 – of the personnel department of the Ministry of Public Services of the Moldavian SSR head, was retired from November 1956.

was the creation of the KGB, when, based on the decision of the Supreme Council of the Soviet Union, the state security agencies were separated from the organization of the Ministry of the Interior and the State Security Committee (KGB) was established on February 10, 1954. In Moldova, at the same time, Josif Mordoveț was appointed as the chairman of the KGB of the Republic. The top leadership of the KGB was given by a body, the Collegium, whose chairman is also the chairman of the KGB, and whose members are the heads of the central and regional bodies, the directorates, as well as the KGB presidents of the Ukrainian and Belorussian SSR, the heads of the Moscow and Leningrad KGB directorates. Modeled after the central Moscow KGB Committee, a KGB College also operated in Moldova. This structure existed until 1991, when each member state delegated its own KGB president to the Board of the College. Following the purge launched in 1953, the organization's staff was reduced by 18,000, of which 200 people were removed from the central bodies and 40 generals were demoted.[16] The great purge also reached Minister Mordoveț, who was retired in 1955.

Mordoveț's name is associated with the purge of kulaks carried out between 1949 and 1951, the liquidation of churches, the persecution of intellectuals and the 1953 doctor trials. However, from the point of view of the professional service, he did an excellent job, because the war conditions were eliminated, and even in the seven short years after the world conflagration, he was able to set up and operate a compact organization of the best possible professional standard in Moldova in a very short time.[17] A secret CIA operation involving the territory of the SSR of Moldova was uncovered by the counterintelligence agency of the Ministry of State Security. In August 1951, two persons were arrested and deployed by the American OPC (Office of Policy Coordination)[18] on the territory of the Moldavian SSR. The two agents, namely F.L. Sarantev and A.I. Osmanov were identified, captured and executed.[19] In warding off the nationalist line, Mordoveț did not achieve as much success as he would have liked, as the Romanian-speaking community always produced more and more resisters. Mordoveț, who preached order and discipline on behalf of the Ministry of State Security, suffered a serious loss of prestige when the Pavlenko affair was revealed. For 7 years, he conducted road construction duties in the western half of the Soviet Union (Ukraine, Moldova), acting on behalf of the army in all cases. Pavlenko was executed, but the party apparatus did not forget him.

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[16] MORARU, Pavel: Organizarea si activitatea structurilor securitatii statului din RSSM (1940-1991). in Panorama comunismului in Moldova sovietica, Context, surse, interpretari, edited by Liliana Corobca, Polirom, 2019, p. 321.

[17] The People's Committee for State Security and later the Ministry of State Security operated in Chișinău between 1944 and 1952 in the buildings at 36 and 38 Vlaicu Pârcălab street today. From December 1952, the Ministry of State Affairs led by Mordoveț moved to a new building at 166 Ștefan cel Mare și Sfânt Street, which today houses the SIS.

[18] OPC – the CIA's Directorate of Covert Operations, headed by Frank Wisner at the time. Operation BIGFRIEND launched in 1948, in which SIS – MI6 and OPC jointly parachuted trained refugees into Albania for the first time, with the intention of overthrowing the communists. The operation continued and paratrooper groups were sent to Ukraine, Romania and Moldova. The Frank Wisner operation was doomed from the start, as he was in daily contact with Kim Philby. More on this in Geroge Maior (ed.) Spion pentru eternitate Frank Wisner. O poveste trista de sionaj despre un om care a credit ca poate schimba lumea, (Spy for eternity: WISNER, Frank: A sad spy story about a man who thought he could change the world), Raoclass, București, 2014.

[19] MORARU (2019) op. cit. p. 320.

After the removal of Mordoveţ, representing the old guard, the Ukrainian national Andrey Prokopenko[20] became the head of the KGB of the Moldavian SSR. Although he did not enjoy particular recognition either on the Party line or in professional circles, his activities in the field of organizational transformation can be said to be significant. He managed to achieve rejuvenation in a short time. Even after four years without the support of the Party, he led the republic's KGB as a colonel. The Khrushchev era broke with the previously usual institutional routine, revisions and rehabilitations began. Social opening also had an impact on the activities of the KGB, as compared to the completely closed world of the Stalinist era, borders were opened and Moldovan citizens could travel to socialist countries. Starting from 1956, new priorities appeared alongside the nationalist and anti-Soviet lines, so the church reappeared in the KGB's annual news requests as an enemy to be processed and avoided. Anti-Church measures increased social tensions. This tension erupted in 1959, when a monastery was closed on the border of the settlement of Răciula. During the two-week riot, neither the state security nor the police (militia) were present in the said region. Prokopenko fell victim of smoothing this event out.

Major General Savchenko[21], who followed him, came to the leadership position of the KGB of the Moldavian SSR just when the regulations on the state security

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[20] Andrey Vasilyevich Prokopenko (1915-1989). In the early 1930s, he was an electrician in the Donetsk region. In 1938, he joined the 3rd counterintelligence department of the NKVD of the Ukrainian SSR. During the Second World War, he participated in the organization of partisan fighting behind enemy lines in Ukraine.
From August 1941 – the head of intelligence of the 2nd partisan regiment of the NKVD of the Ukrainian SSR, from November 1941 – the deputy head of the 4th Directorate of the NKVD of the Ukrainian SSR.
From May 1942 – the chief deputy of the intelligence department of the Ukrainian center of the partisan movement (Voroshilovgrad, Stalingrad, Moscow),
From November 1942 – the deputy commander of the formation of partisan detachments of the Zhytomyr region head of his department.
Between 1946-1950, deputy head of the personnel department of the MGB in the Ternopil region of the Ukrainian SSR,
Between 1950-1951, deputy head of the 5th Directorate of the Ministry of State Security of the Ukrainian SSR, Between 1952-1953, head of the 5th Department of the 5th Directorate of the Ministry of State Security of the USSR,
Between 1953 and 1954, he was the deputy head of the 4th Department (from May 7, 1953 - 6th Department) of the 4th Directorate of the Ministry of Internal Affairs of the USSR,
In the period April-July 1954, deputy head of department of the 4th Directorate of the KGB under the Council of Ministers of the Soviet Union,
Between 1954-1955, head of the 9th department of the 4th Directorate of the KGB under the Council of Ministers of the Soviet Union,
Between 1955-1959 he was the chairman of the KGB under the Council of Ministers of the Moldavian SSR, between 1959-1973, under the Council of Ministers of the Soviet Union, he was the head of the Accounting and Archives Department of the KGB In 1973, he was placed in the active reserve of the KGB of the Soviet Union. He retired in 1986. http://shieldandsword.mozohin.ru/personnel/prokopenko_a_v.htm (downloaded 30 November 2020)

[21] Ivan Tikhonovich Savchenko (1908 - 1999) - Soviet organizer of state security agencies, chairman of the KGB under the Council of Ministers of the Soviet Union (1954-1959), lieutenant general (1975). He was born in a middle peasant family. Ukrainian. Member of SZKP (b) since October 1939. In June 1923 - July 1925, he studied at the Taganrog labor school, from July 1925 – June 1930 – at the Taganrog industrial technical school (diploma was issued by the Kamenskoye Metallurgical Institute in 1930), then he became the head of the ore yard, head of continuous production training, assistant to the shop manager of the

agencies of the Soviet Union came into force for the first time in the history of the Soviet Union, which regulated the tasks and rights of secret services for the first time in Soviet times, expanding the former and somewhat reducing the latter. During Stalin's time, the Moldovan SSR had an independent border guard district organization. The aforementioned 1959 regulation regulating the situation of the secret services also regulated the organizational affiliation of the border guard units. Thus, the border guard became one of the directorates of the KGB and remained in this organizational form until 1991. Although Savchenko was professionally untrained, due to his personality he was still able to carry out the structural changes on central orders in such a way that he earned the recognition of his colleagues and subordinates. In the personnel policy, he applied gradation, gradually demoted the older, "linemen" and filled the vacant positions with young people with higher education. He also made sure that more proportional representation was realized in the organization, i.e. more Moldovans (Romanians) were included in the board. The Khrushchev era was characterized by economic deterioration and the persecution of the churches. At the republican level, the KGB was unable to control economic crimes arising from impoverishment. This was offset by the closing of the pilgrimage sites or the strict control of those that remained. In order to prevent foreign intrusion, the designated hiking routes that can be walked with a guided tour guide were introduced, and the rules for visiting scientific and technical objects were also regulated.[22]

Khrushchev's departure from the post of party secretary general in 1964 weakened Savchenko's position and finally, as a representative of the Khrushchev

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blast furnace, chief engineer methodologist, educational leader of the courses of masters of socialist work, F.E. Shift leader of the smelter workshop of the Dzerzhinskij metallurgical plant (Kamenka, Dneprodzerzhinsk, Dnipropetrovsk Region), since May 1941 – secretary of the Office of the Communist Party) Ukraine workshop. Since May 1941, he worked in the Party Control Committee operating under the Central Committee of the All-Union Communist Party (Bolsheviks): Inspector, Deputy Commissar of the CPC under the Central Committee of the All-Union Communist Party (Bolsheviks) operating in the Chkalovsk district, since April 1943 the All-Union Since 1944, the authorized CPC controller of the Communist Party (Bolsh) CPC under the Central Committee of the Bolshevik All-Union Communist Party in Molotovskaya, since May 1946 - in the regions of Voroshilovgrad. Since June 1947, deputy head of the Personnel Directorate under the Central Committee of the Communist Party of Ukraine (Bolsheviks), since December 1948 - deputy head of the Department of Planning, Finance and Trade Organs of the Central Committee of the Communist Party (Bolsheviks) of Ukraine, then in the apparatus of the Central Committee of the Communist Party (Bolsheviks) worked (inspector of the Bolsheviks): December 1950 - March 1951), head of the department of party, trade union and Komsomol bodies of the Central Committee of the CPSU (b) (March 20 - August 1951). Then he was sent to work at the MGB. Starting in 1951, in the state security agencies: Deputy Minister of State Security of the Soviet Union (August 26, 1951 – July 3, 1952), Head of the GUSS under the SZKP (b) - Central Committee of the SZKP (June 28, 1952 - March 12, 1953), Head of the 8th Directorate of the Ministry of Internal Affairs of the USSR (March 12, 1953 - March 18, 1954), Chairman of the KGB under the Council of Ministers of the Soviet Union (March 13, 1954 - July 6, 1959), Chairman of the KGB at the Council of Ministers of the Moldavian SSR (July 11, 1959 - February 14, 1967), Head of the UGB representation of the KGB in Hungary (February 14, 1967 - July 1969), Head of the KGB representation in the Bulgarian Ministry of the Interior (July 1969 – November 1979). He retired in 1980. http://shieldandsword.mozohin.ru/personnel/savcenko_i_t.htm (downloaded 30 November 2020)

22 ȘEVCENCO op. cit.

line, he was replaced as head of the KGB of the Moldavian SSR in 1966. Pyotr Tchvertko[23], who followed him, came from the position of head of the KGB of the Kyrgyz SSR and was considered a recognized counterintelligence agent. Under his leadership, the detection of citizens with foreign connections was intensified, and political dissidents were put under pressure. During this period, the organizational structure of the KGB of the Moldavian SSR was consolidated, and it operated in an unchanged form until its fall in 1991. Background units absolutely necessary for the operation of the KGB: in addition to personnel, management and secretariat, the following operative directorates were established: I. Intelligence Department at the republic level; II. Counterintelligence; III. Military Counterintelligence; IV. Counterintelligence in the public transportation; V. Ideological Counterintelligence (arts, creative communities, etc.); VI. Counterintelligence on military industrial objects; VII. Monitoring of Foreigner(s); VIII. Encrypted Correspondence; IX. Protection of Dignitaries under public law; X. archives; XII. Operational Wiretapping; XV. Department producing special purpose devices; XVI. Technical and Scientific Intelligence.[24] Between 1966 and 1971, measures taken in the field of state secret

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[23] Pyotr Vlagyimirovich Tchvertko (1915-?) - Soviet organizer of state security agencies, chairman of the KGB under the Council of Ministers of the Kyrgyz SSR (1961-1966), under the Council of Ministers of the Moldavian SSR (1966-1975), major general. He was born in a poor peasant family. Russian. He joined the SZKP in 1939. In 1950, he graduated from the Faculty of History of the Krasnodar State Pedagogical Institute with a degree in correspondence. In 1933 - an employee of the "Verny Put" collective farm (Dadorovka), in 1935 - a colleague of the department, a member of KOMSZOMOL of the Bryansk region. In 1937 - head of the KOMSOMOL committee of the Smolensk region, at the same time a teacher of history and geography in Mozhalsk. In 1938, he was the director of the Lenin Children's Home in the same place. From June 1938 - the secretary of the Komsomol Mozhalsk district committee, since 1939 – the head of the peasant youth department of the Komsomol Smolensk regional committee. From October 1940, he entered the service of the NKVD. He started his activity as the head of the political department of the Smolensk school of the Youth Command of the Workers' and Peasants' Militia, and in 1941 he joined the state security agencies: 1941-1942 – 5th deputy department head of the 4th department of the UNKVD Smolensk region, January-April 1942 - employee of the operational group of the 4th Directorate of the NKVD of the USSR, which operated in the zone of the 16th Army of the Western Front, April-November 1942 – senior deputy of the 3rd department of the same department, head of the working group of the 4th Directorate in the 33rd, 43rd and 49th armies of the Western Front 1942-1943 – studies at the higher school of the NKVD of the Soviet Union, April - July 1943. He was assigned to the working group of the NKGB, which dealt with the withdrawal of those who collaborated with the Germans in the Krasnodar Territory, 1943-1946 – head of the 2nd department of the UNKGB department in Sochi, February-October 1946 – head of the 3rd department of the 2nd department of the UNKGB in the city of Sochi, 1946-1949 - independent secretary of the party office of the UMGB in Sochi, 1949-1952 – in leadership positions of the UMGB, 1952-1953 – Department head of the UMGB of the city of Sochi. He then held senior positions in the system of state security agencies of the USSR: 1953-1954 – deputy head of the Ministry of Internal Affairs of the Krasnodar Territory – department head of the city of Sochi, 1954-1957 – head of the Rostov Region Directorate of the KGB, 1957-1961 – head of the Krasnodar Territory Directorate of the KGB, 1961-1967 – chairman of the KGB in the Kyrgyz SSR 1967-1975 – Chairman of the KGB in the Moldavian SSR, 1975 and 1982 - District Liaison Officer of the UMGB of the Dresden District of the GDR, contact person responsible for coordination and relations with the KGB and the GDR MGB. In April 1982, according to his age, he was placed in the reserve with the rank of brigadier general.

[24] Divisions 11, 13 and 14 did not exist. Ruslan Șevcenco: Istoria serviciului secret a Moldovei (1940-2007) și comentariul asupra cărții lui T.Botnaru și A. Ganenko,

protection and the security of protected objects were introduced in 33 objects in 1966 alone. [25]Among others, a secret alarm system was introduced at the State University of Moldova.

During Tschvertko's period, the self-organization of the Romanian national opposition became more intense. Thus, it is not surprising that in 1972 Soltoianu's Romanian national movement was crushed and the 50 arrested were sent to the GULAG. Tschvertko's personality and tendency to brutality disturbed many of his subordinates, so many complaints came to Moscow. In the end, he was replaced as head of the republican KGB and sent abroad to the GDR office in 1975.

In the person of Arkady Ragozin[26], an educated man came to head the KGB of the Republic of Moldova. According to his qualifications, he is a journalist who was a well-read person, and the methods he introduced also reflect his passion in this direction. The issue of national movements that existed in the earlier period also appeared as a Moldavian-Romanian (Romanian-Romanian) phenomenon during his priesthood. Thus, he considered the inspection of persons coming from Romania and the inspection of book and press products to be particularly important. He set up a translation unit to be aware of the Romanian national movements on a daily basis. He solved the preventive activity by integrating into cultural and university institutions. Thus, in the Volodarski case, he succeeded in the technique of displacement. Volodarski taught as an associate professor at the USM, i.e. the Moldovan State University, and openly condemned the 1968 invasion of Czechoslovakia. He

http://statulmoldovenesc.blogspot.com/2011/04/istoria-serviciului-secret-moldovei.html (downloaded 30 November 2020)

[25] See the report of the Council of Ministers of the SZSZK Moldavia on security measures in Annex No. 1. The report was signed by Pyotr Chsvertko, head of the republican KGB. I would like to thank researcher Ion Valer Xenofontov, a teacher at the Moldova State University, for his help in translating this document.

[26] Arkady Pavlovich Ragozin (1918-1998) – Soviet economist, state and political personality, lieutenant general of state security (1973); Chairman of the KGB of the Armenian and Moldavian SSR and the KGB of the Bashkir Autonomous Region. He was born in 1918 in a family of agricultural workers. He became a member of the SKP in 1946. Between 1938-1943, he was a student at the Institute of Military Railway Engineers in Novosibirsk. Later, he worked as a correspondent for the newspaper "Gudok", and also graduated from the college of the Ministry of State Security of the Soviet Union. He held the following positions [1]: Deputy Head of the Security Directorate of the Ministry of Internal Affairs at the Ufa Railway (December 1952 – February 10, 1954) Later, Head of the KGB Department of the Karaganda Railways (February 10, 1954 – November 1956) head of the Kazan railway department of the KGB (November 1956 – April 1960) Head of the 2nd Department of the KGB of the Tatar Autonomous Soviet Socialist Republic (April 1960 – November 1961) and Deputy Head (November 1961 – February 19, 1963). Head of the Sakhalin Region of the KGB (February 19, 1963 – January 14, 1967) Chairman of the KGB of the Bashkir Autonomous Region (January 14, 1967 – November 28, 1969) Head of the Personnel Directorate of the KGB of the USSR (November 28, 1969 – November 1972) Member of the KGB College of the Soviet Union (May 27, 1970 – August 19, 1975) Chairman of the Armenian KGB (November 21, 1972 – November 24, 1975) and the Moldavian SSR (KGB) (December 17, 1975 – January 19, 1979) Since 1979, he has been a teacher at the Red Banner College of the KGB. He retired in the mid-eighties with the rank of lieutenant general. http://shieldandsword.mozohin.ru/personnel/ragozin_a_p.htm (downloaded 30 November 2020)

continued his anti-Soviet cover-ups in the 1970s. In the end, the KGB bodies branded with Ragozin's name expelled him from his university position, and then forced him to leave the country so that Volodarski emigrated to Israel. In 1979, in recognition of his abilities, Ragozin was invited to Moscow, where he taught at the KGB Academy until the mid-eighties.

Gavriil Volkov[27] already had leadership experience in the state security structure of the Moldavian SSR, as he was previously the deputy head of the republic's KGB between 1955 and 1962. He was a diplomatic figure and a dynamic person who was able to diplomatically avert the initiative of the Republican Party secretary, Ivan Bodiul, to destroy the church. Under his leadership, state security strove to operationally embrace Zionism and Romanian nationalism. At the end of the 1980s, with the Gorbachev reforms and the strengthening of national movements, the central leadership of the KGB realized that a change in leadership model would be necessary. Thus, they decided to recall the Russian-born Volkov and appointed a Romanian-born general in his place, Gheorghe Lavranciuc[28]. His twenty years of experience, mainly as a manager responsible for personnel policy, gave him a significant advantage in the field of management. At the same time, the rapid changes taking place in world politics and the Soviet Union made it more and more difficult for the KGB to achieve the previously defined primary task of maintaining order and security in the Republic of Moldova. In a state strongly divided on linguistic and political grounds, there was a danger that the once all-powerful KGB would lose its former role. As a result of the initiated reforms, the V. "ideological" department was transformed into a constitutional protection unit. The KGB tried to change from a machine that served the dictatorship to one that collected and processed information, and this brought with it value-based thinking within the institution. However, his previous experience as a leader did not help Lavranciuc to break the trap, as the head of the KGB in Moscow,

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[27]   Gavriil Mojseevich Volkov (1920 - 2016) - Soviet organizer of state security agencies. In 1938, he entered the Novosibirsk Railway Engineering Institute. In 1945, he became a member of the SZKP. He graduated from the KGB College in 1955. In the state security agencies: in 1942 he began his service in the UNKVD in the Novosibirsk region, later - the head of the UNKGB department of the Ukrainian Soviet Union in the Volyn region. From 1946, he worked in the UMGB of the Ukrainian SSR in the Chernivtsi region. Head and Deputy Chairman of the KGB Investigative Department under the Council of Ministers of the Moldavian Soviet Union (1955-1962) Deputy Chairman of the KGB under the Council of Ministers of the Kazakh SSR (1962-1965) Head of the Directorate of the Kalinin Region of the KGB (1965-1970) Head of the Volgograd Directorate of the KGB (1970-1979) Chairman of the KGB of the Moldavian SSR (1979-1989). He retired in April 1989 with the rank of lieutenant general.
http://shieldandsword.mozohin.ru/personnel/volkov_g_m.htm (downloaded 30 November 2020)

[28]   Lieutenant General Gheorghe Lavranciuc (1934 - 2009) was born into a peasant family. Moldavian. In 1950, he studied at the Pedagogical School of the city of Balti, Moldavia, and then from 1954 he moved to the State Pedagogical Institute in Chisinau. I. Creanga, in 1959 became the secretary of the institute's Komsomol committee. From August 1959 - the first secretary of the district committee of Chisinau. He joined the SZKP in 1960. He applied to the state security and internal affairs bodies in 1967. From 1967 to 1985, he was the deputy head of the Moldavian SZSZK branch of the KGB. Minister of the Interior of the Moldavian SSR from 1985 to 1989. Chairman of the KGB of the Moldavian SSR from January 23, 1989 to June 23, 1990. Deputy head of the "OP" directorate of the Soviet KGB between December 1990 and August 1991. After the collapse of the Soviet Union, he continued his service in the FSB. until his retirement in 1998.

Vladimir Kryuchkov, asked him to keep the organization intact, i.e. to protect the Soviet Union, while the Republic of Moldova wanted independence from Moscow. The situation was decided by the free Moldovan elections of 1990, as a result of which, at the request of Prime Minister Mircea Druc, the representative of the new political establishment, Lavranciuc was released, who left for Moscow and continued his career there within the framework of the FSB.

Until 1990, the chairmanship of the KGB of the Moldavian SSR was always managed by a person from the counterintelligence or party line. In June 1990, an intelligence officer took control for the first time in the person of Tudor Botnaru[29]. In the nineties, he constantly had to deal with the stigma of a "man from Moscow". That is why his professional suggestions that certain structural elements of the KGB be taken over by the newly formed professional services fell on deaf ears. With his measures, he reduced the number of troops of the border security agencies and opened border crossings in the western border section. He proposed the establishment of a national security committee, but this was rejected, citing memories of the recent past. In the same way, his proposal that the bodies responsible for the national security protection of strategic institutions should remain in place was doomed to failure. Privatization brought with it an increase in economic crimes and sought to detect them. During this period, the objects and personnel of the Commissioner's bodies were often attacked in the areas beyond Dniester. As a result of his actions, the decision of his predecessor, KGB General Lavranciuc, succeeded in recovering a part of the operative documents that had been transported to Tiraspol and depositing them in Chisinau. In May 1991, the Moscow center adopted new professional service regulations. Its adoption and practical application in Chisinau met with fierce opposition from certain political parties. Despite such political pressure, Botnaru remained in his position until August 1991, but then the coup in Moscow put an end to the KGB and his position as president. These events are milestones in the transformation of Moldovan professional services into a national one, but their discussion would go beyond the time frame of this study.

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[29] Tudor Botnaru (1935-2017) Moldavian. The SCP accepted him into its ranks in 1965. He joined the State Security Agency in 1963. He completed his KGB higher education in Minsk. He started his service in the 2nd department of the KGB in the Moldavian SZSZK, in 1966 he was transferred to the 1st department, then he was transferred to the KGB PGU. Starting in 1978, he first worked at the residences in Bucharest, then Brussels and finally Paris. In the meantime, he is the assistant in charge of international relations to the rector of Chisinau State University. From 1982 - chief operative, and from 1986 head of the 1st Department of the KGB of the Moldavian SSR. Between 1988 and 1990, he was the first deputy chairman of the Moldavian SSR KGB, then its chairman from June 1990 to the end of August 1991. After the collapse of the Soviet Union, he continued to lead the security service of Moldova, and since 1994 he has been the head of the Training Center of the Ministry of National Security. In April 1994, he took up diplomatic service as the first deputy foreign minister of Moldova, then from December 1994 the ambassador of Moldova to Belgium. In January 1997, he returned to the field of national security and became the Minister of National Security of Moldova and a member of the Supreme Security Council. He retired in 1999 as a four-star general.

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ÁDÁM MAJOROSI[1]

OVERVIEW OF THE ANTITERRORIST OPERATIONS OF THE ARAB REPUBLIC OF EGYPT BETWEEN 2011 TO 2022

Abstract

In this study, I will examine the Egyptian antiterrorist operations conducted during the last ten years. Under these years, the goverment faced with serious challenges from the terrorist groups, which could have been minimised since 2020. The first three years of this period (2011-2013) will be shown in the first chapter. I will review the causes of the Sinai's bedouin rebellion, and the answers of the security services, and also the antiterrorist acts of president Morsi. At the beginning, it were the tribes that led the insurgency, because the terrorist groups thrusted it upon them. Altough the military tried to eliminate the insurgency with conventional tools, which however was useless. Then I will examine the period between 2014 and 2018. By this time, because the army dissolved the goverment of the Muslim Brotherhood, the activities of terrorist cells were intensified. Their attacks were much more organized, and mainly the attacks of the Islamic State made serious casualities to the military. Against this huge challenge, the security apparatus tried new methods (for example banned the Internet, or closed the borders). However, these measures were fruitless. At the end, I will close this study with the period between 2017 and 2022. By this time, the Islamic State was pushed back, and the military tried to encircle and eliminate the terrorist groups. They acquired new undertakings in the northern part of the Sinai Peninsula, opening the door for the development, for the welfare of the locals. My conclusion is that the operations of the terrorist groups were eliminated mostly by military force, and they couldn't replace their casualities. The other measures (economic, political, social) had a lesser role.

Keywords: Egypt, antiterrorist operations, Sinai Peninsula, Islamic State, Muslim Brotherhood

1. Introduction

In this essay, I would like to analyze the antiterrorist operations of the Egyptian security services (military, police, secret services). The terrorism has grown to a huge problem since the end of the Cold War (1991.). The problem of terrorism was noticed by the „Western World" after the attacks of 9/11. They have tried to eliminate it with political-military tools, and confronted it with international cooperation, but unsuccessfully. In the MENA[2] region, the number of attacks was outstanding. The Wilson Center made a report, which had written about the proprotion of the attacks.

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[1] ORCID number: 0000-0003-2939-3103

[2] MENA: abbreviation of Middle East and North Africa. MENA region was described by Barry Buzan, it contains the area from Morocco to Iran, from Yemen to Turkey. I added to it Pakistan, Afghanistan, and Turkey, because their dynamics can change the facade of the region.

These were broken down to regions. The MENA region shared 93% of these attacks.[3] The terrorist activities were facilitated by civil wars, regional conflicts, state building efforts of other non state actors (ISIS), and by political instability (Egypt is also in this category).

Thus, in this work, I will do a research in the area of the govermental antiterrorist operations in Egypt. I have determined a timeframe from 2011 to 2022, because it is able to provide us enough space for examining, describing and evaluating the process of antiterrorist activities. I will analyze mostly the terrorist attacks, and the govermental answers against them. This topic is really exciting, because we can understand, how a Middle Eastern country can fights against terrorism, which means are used, and which strategy is developed to eliminate terrorist threats. Also I would like to descibe the terrorist attacks, because I thought that it will provide help to other countries and security organizations to introduce effective countermeasures against terrorist cells.

Furthermore, nowadays, the asymmetric threats are the most common challanges to a nation state. We have to ask the question that could this threat be erased with only military means? Or could we use non-military tools? How does Egypt think about terrorism? Egypt looked at the problem of terrorism as a threat which will be able to solve with military-police tools. However, with these tools only, this problem couldn't be settled. We need other means, such as economic or societal tools, because we will not be able to erase this challenge with the security services alone. These means had been already used by the Egyptian goverment not long ago, but without tangible results. Moreover, I wanted to search for an answer why the terrorist groups in Egypt were so successful against the security services. In my point of view, the Libyan and Syrian conflicts can give us answers. After the Arab Spring, the terrorist cells were strenghtened in the western and eastern border zones of the country. They created a supply line towards Syria and Libya, so they received assistance in manpower, and ammunition from these countries. They also used the social strifes to their advantage, and tried to mobilize the local population to their cause. In the end, the Egyiptian military had to send troops to the two border zones, and also fight against the terrorist threat, which will be able to minimise it's efficiency.

My essay contains three parts. In the first part I will write about the period wich started with the Arab Spring and ended with a coup against president Morsi. At this period, the radical groups weren't so organized, and they made individual attacks. Then, the next period started with the military coup of 2013, and it finished in 2017, before the Comprehensive Military Operation for Sinai started. In this period, the terrorist cells became much more organized, and they made sophisticated attacks, and used new tools (such as suicide bombings). At the end of this period, they started to lose ground because of the enormous state resources. The Islamic State also started losing ground, which helped the al-Qaeda to reorganize their cells in the continent.

The last part begins in 2017, and will be finished in 2022. At this time, all organized cells lost most of their members and also their leadership. Thus, they had to change their tactics, making individual attacks again. The goverment tried to make

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[3]   Report: Terrorism on Decline in Middle East and North Africa, 2019.

a redevelopment, and repopulation in the peninsula, but the terrorists are now making attacks against the locals bundling off them from the peninsula.

2. The period from the Arab Spring to the end of the presidency of Morsi (2011-2013)

The Arab Spring was errupted in Egypt on February 2011. Before that Tunisia lived through this event. In this study, I don't want to analyze the causes of the Arab Spring of Egypt. I only would like to highlight some events, which were the most important. The main cause of the strikes was the inadequate social situation. In the country, the population is always growing, however the rate of this growth was decreased from 2,3% to 1,9%.[4] This means, that the population has grown with more than 2 million people per year. The problem is that Egypt's economy couldn't keep up with the huge growing rate, so it couldn't give them the necessary goods and jobs. In the country, the unemployment rate was 11,85%, and it has grown with 3% since 2021 year. This rate was reduced to 10,85% in 2021. Altough the Sisi presidency tried to decrease the rate of unemployment; however, they couldn't stop it's increase, which stands at 0,72%. [5] Nowadays, it decreased to 7,4%. As regards youths (15-24 years) the rate of unemployment was 29,47% in 2011, and it increased simultaneously under the next couple of years. Only the Sisi goverment could decrease it to 26,54%, altough it is relatively huge in the region. [6] Thus, the younger generation couldn't find a job, so they blamed the goverment for it. Moreover, because of the huge population, the citizens had to face huge problem, when they tried to get an apartment. In the country, 95% of the population lives in the biggest cities of Egypt (Cairo, Alexandria), on the 5% of the whole country. [7] The cities are overcrowded, and many slums were created inside them. Consequently, the people made strikes, because of social problems. They had political slogens, but the policy issues were subordinated to social issues. They criticised that the regime won the elections with cheating, intimidation, and with the use of the military force.[8] However, they started the strikes after the events of Tunisia. The people of Egypt has watched the events on TV, or on the social media, and they decided that it was time to move against Mubarak. After the events of Egypt, the military removed Mubarak from presidency, and a democratic process has followed it.[9]

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[4] Egypt's population (live); https://www.worldometers.info/world-population/egypt-population/ (downloaded 02 April 2022)

[5] Egypt's unemployment rate; https://tradingeconomics.com/egypt/unemployment-rate, (downloaded 02 April 2022)

[6] Egypt's unemployment rate; https://tradingeconomics.com/egypt/unemployment-rate, (downloaded 02 April 2022)

[7] CIA World Factbook (2021); https://www.cia.gov/the-world-factbook/countries/egypt/ (Downloaded 02 April 2022)

[8] GAZDIK, Gyula: Egyiptomi parlamenti választások: előzmények, eredmények, jövőbeni kérdőjelek, ZMNE, Budapest, Institute for Strategic and Defence Studies, Analyzes, 2011. p. 1.,2.,9.

[9] MCGREAL, Chris et al.: Hosni Mubarak resigns – and Egypt celebrates a new dawn; 2011. https://www.theguardian.com/world/2011/feb/11/hosni-mubarak-resigns-egypt-cairo (downloaded 18 October 2021)

Meanwhile, at the Sinai Peninsula an insurgency erupted in the northern part. This region wasn't similar to the well developed, and tourist- visited southern part. It was undeveloped and the people were poor. The regime considered the local bedouins as secondary citizens.[10]

They were considered secondary citizens, because the goverment thought that they helped the Israeli military during the occupation of the peninsula. Thus, they couldn't become members of the administration, the military, and haven't received adequate healthcare and food. Thefore, the locals dug smuggling tunnels, and acquired the essential living goods through the Palestinian territories. The smugglers also brought through the tunnels many guns to the members of terrorist organizations, who started to live next to the tribes and tried to gain influence over them. [11] The goverment wanted to dissolve them, but these attempts caused conflict with the local bedouins.[12] Moreover, the northern part of the peninsula was divided into four zones, and military force in the area was limited, preserving the peace treaty with Izrael. [13]In practice, this meant that the military force was small, and it couldn't stop the eruption of insurgency. The military didn't govern the area in the past, it was directed by the local tribes, so the area was quasi self-governed. In additon, the area suffered from a huge undevelopment. The southern part of the peninsula is a tourist heaven, and the goverment was making many undertakings to bring more tourists to the area. However, the northern part didn't received any support from the goverment, because of it's unimportance.[14]

After the strikes were started, the local military brigades were deployed back to the capital. The locals utilized this event and attacked police stations and military outposts, acquiring weapons and military equipment. The terrorist joined the insurgents, and attacked the military outposts, bases, and they moved beyond the border, and also attacked Israeli targets. Israel feared from an Egyptian retorsion, so it only strenghtened the border with fences and special operations units. To control the area, Egypt launched a campaign in August 2011, trying to regain control over the area. The military campaign was called *Operation Eagle*.[15] The goverment used special operation units, and it was planned that these units would have cleared the

[10] WALTON, Oliver: Helpdesk Research Report: Conflict, Exclusion and Livelihoods in the Sinai region of Egypt; Geneva Centre sor Security Sector Governance, Geneva, 2012. pp. 2-3.

[11] BASSIL, Annabel: Non-International Armed Conflict To Continue In Sinai? Report; 2019. https://www.geneva-academy.ch/joomlatools-files/docman-files/Non International%20Armed%20Conflict%20To%20Continue%20In%20Sinai%20.pdf, (downloaded 03 April 2022)

[12] GENTRY, Chris: The Sinai Insurgency, Part 1: An Introduction; 2018. https://international-review.org/the-sinai-insurgency-part-1-an-introduction/ (downloaded 03 April 2022)

[13] WATANABE, Lian: Sinai Peninsula – from Buffer Zone to Battlefield; CSS Analyses in Security Policy, February 2 2015, https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/CSSAnalyse168-EN.pdf (downloaded 03 April 2022)

[14] IDRIS, Iffat: Sinai Conflict Analysis; K4D, London, 2017. pp. 4-5. https://reliefweb.int/sites/reliefweb.int/files/resources/049%20Sinai%20Conflict%20Anal ysis%20(new%20K4D%20template).pdf (downloaded 03 April 2022)

[15] KATZ, Yaakov: Egypt launches massive operation to control Sinai; 2011. https://www.jpost.com/defense/egypt-launches-massive-operation-to-control-sinai (downloaded 03 April 2022)

northern territories, and pushed the terrorists to the middle of the peninsula, where they were encircled. Meanwhile, helicopters were used to bomb the hideouts and stocks of terrorists.[16] At the beginning it seemed that the operation was successful. For example, on 15 August 2011, the security forces dissolved a stock and they killed and arrested some terrorists. The military set up checkpoints in the bigger cities to control the movements of terrorists. However, the terrorists moved at night, and lone assailants made attacks against the checkpoints. The military couldn't respond to them.[17]

However, the terrorists continued their operations. On 12 August 2012 they attacked a border checkpoint, where they killed sixteen border guards.[18] The guards were preparing for the feast of Ramadan, when the attack happened.[19] Thus, the military launched a new operation, which called *Operation Sinai*.[20] At the beginning of the operation, the military made air strikes against the buildings of insurgents, then occupied the main cities with heavy equipments and with huge forces. They also conducted perquisitions, and for example, the military arreste six persons, who attacked the border guards at Ramadan.[21] The terrorist groups wanted to avoid the clashes with the military, and they attacked from outway places. They used the mountains as bases, and retreated there. Therefore, the military had to siege these mountains, like the Halal mountain, which was occupied in 2017.[22]

Meanwhile, the country tried to strengthen the international cooperation against the terrorists. First of all, they received cooperation from the United States, which gave mostly infromations about the terrorist groups and also drone photos.[23] Egypt also strengthened the cooperation with Israel. The delegations of the two countries met continuously, and changed information about the terrorist activities, joint

[16] KHALED, Osama: Special forces deployed to Sinai to restore security; 2011.
    https://www.egyptindependent.com/special-forces-deployed-sinai-restore-security/
    (downloaded 03 April 2022)
[17] MAHER, Hatem et al.: UPDATED: Egyptian troops strike hard in North Sinai after
    multiple attacks; 2012.
    http://english.ahram.org.eg/NewsContent/1/64/49906/Egypt/Politics-/UPDATED-
    Egyptian-troops-strike-hard-in-North-Sinai.aspx (downloaded 03 April 2022)
[18] FAHIM, Kareem, et al: Gunmen Kill 15 and Steal Vehicle in Attack on Egypt Base; The
    New York Times, 2012. https://www.nytimes.com/2012/08/06/world/middleeast/gunmen-
    storm-egyptian-base-killing-15-soldiers.html (downloaded 04 Apil 2022)
[19] Egypt border guards killed in Sinai attack; 2012,
    https://www.aljazeera.com/news/middleeast/2012/08/201285183958163902.html
    (downloaded 04 April 2022)
[20] EL-BEHAIRY Nouran: Egyptian armed forces announce results of "Operation Sinai"; 2012.
    https://wwww.dailynewssegypt.com/2012/09/08/egyptian-armed-forces-announce-results-
    of-operation-sinai/ (downloaded 04 April 2022)
[21] Egypt kills militants, seizes weapons in Sinai offensive; 2012,
    https://edition.cnn.com/2012/09/08/world/africa/egypt-sinai/index.html, (downloaded 04
    April 2022)
[22] DRAA, Ahmed Abu: Safe haven: Mount Halal is said to be the refuge for Sinai militants;
    2012. https://egyptindependent.com/safe-haven-mount-halal-said-be-refuge-sinai-
    militants/ (downloaded 04 April 2022)
[23] MYERS, Steven Lee et al.: After Sinai Attack, U.S. and Egypt Step Up Talks on Security;
    2012. https://www.nytimes.com/2012/08/12/world/middleeast/egypt-and-us-step-up-
    talks-on-security-assistance.html, (downloaded 04 April 2022)

operations, and the release of captive soldiers.[24]This helped the Egyptians to dissolve the terrorist organizations.

On the peninsula a new president was elected, his name was Mohamed Morsi. He tried new methods to solve the situation. He started new investments on the peninsula, gave back the lands to the bedouins, and investigated the suffered discriminations. [25] However, the terrorist groups appeared in the cities, in the middle of 2013. The security forces arrested a group in the suburs of Cairo, who had weapons and a lot of money. They confessed that there were many groups of them, who lived in the cities near the mosques.[26] They started to commit attacks after the coup of the military.

3.   The first five years of the Sisi administration (2013-2018.)

The presidency of Mohamed Morsi ended by demonstrations. They erupted, because the Egyptian civilians didn't accept the Muslim Brotherhood's centralised measures, the strengthened role of the religion in politics, and the huge corruption. The military used the demonstrations to it's advantage, and dismissed the Muslim Brotherhood. Thus, the military has taken back it's former position as the leader of the country. Because of the coup, the supporters of Muslim Brotherhood also started strikes, which was dissolved by military force, and the Brotherhood was decleared as a terrorist organization.[27] The former members were detained in prisons, where they served time with radicalised persons, so they also were radicalised.[28] This event had effects also on the Sinai peninsula. The locals thought that under Morsi they could live freely, and they hoped, that the peninsula would have received an autonomy. However after the coup, they feared that this freedom was over and the military will repress them, so the attacks continued, and their numbers were strengthened. They conducted attacks in the cities of Sinai, for example, in Seikh Zuveid, Rafah or El-Arish, mostly against soldiers and police officers.

The greatest terrorist organization was the Sinai Province. It's former name was Ansar Bay al-Maqdis (The Supporters of Jerusalem). They were created possibly in 2011-12, from soldiers and local bedouins.[29] They were professionals, who made precise strikes against the military. However, they used unusual tools in Egypt, such

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[24]   STERN, Moran: The Reality of Israel–Egypt Relations; 2016. www.atlanticcouncil.org/blogs/menasource/the-reality-of-israel-egypt-relations, (downloaded 04 April 2022)

[25]   IDRIS op. cit. p. 2.

[26]   HUSSEIN, Walaa: Homemade bombs widespread in Egypt; 2014. www.al-monitor.com/pulse/ru/originals/2014/02/egypt-violence-spread-homemade-bombs.html (downloaded 04 April 2022)

[27]   WORTH, Robert F.: A Familiar Role for Muslim Brotherhood: Opposition; 2013. www.nytimes.com/2013/07/29/world/ middleeast/egypts-muslim-brotherhood-back-on-painful-ground.htm (downloaded 06 April 2022)

[28]   AMAN, Ayah: Egypt's youth turn to Islamic State; 2014. www.al-monitor.com/pulse/ru/originals/2014/11/egyptyouth-turn-to-islamic-state-peaceful-brotherhood.html (downloaded 06 April 2022)

[29]   SCHWEITZER, Yoram: Egypt's War in the Sinai Peninsula: A Struggle that Goes beyond Egypt; 2015. www.inss.org.il/ index.aspx?id=4538&articleid=8667 (downloaded 06 April 2022)

as suicide bombings. They pledged their loyalty to the Islamic State in 2014. They have received from it new members and also new fighting methods. They used the suicide bombings as a military tool. They could begin their attacks with these bombings, and make the military escape behind sand walls. And the Sinai Province could kill them from the surrounding buildings. But they could change the timings of these attacks, and first overpowered the military with gunfire, who didn't noticed the suicide bombers. So they could inflict huge damage to the military.[30]

The Egyptian security forces acted illogically to these attacks. They tried to arrest everybody, who lived near the places of the attacks. And they also used psychological operations. They distributed flyers, which advised the locals to stay at home.[31]

The securtiy services tried to solve the problem by attacking the terrorist's supply chain. In order to do that, they were making bombings by planes and helicopter attacks against the hidden storages and the channels. They also relocated the locals from the border zones, because of the army wanted to control and destroy the supply channels.[32] In the terrorists' successes, the local tribes had a huge role. Previously, the tribes, at the beginning, didn't support the coup of 2013.[33] However, the situation changed in 2015. The leaders of the tribes organized an assembly in that year.[34] They forbade the members of the tribes to help the Province Sinai. If one of the members broke this rule, he or she didn't receive protection from the tribes. This was also true for the local businessmen. They decleared that they will help the military, and asked the locals to stay at home.[35]

The tribes were fed up with how the Sinai Province treated with them. Many members were kidnapped, executed. Thus, when the Province attacked the Tarabin tribe, the violence was broken up between the tribe and the terrorist group in April 2017. After that, the members of the tribe participated in the antiterrorist operations, and helped the military with intelligence informations.[36] However the local civilians didn't trust the military. Because after the attacks, they were arrested by them, even if they weren't members of the organizations. Also these operations had many civilian casualities, which turned the civilians against the military.

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[30] HUFFMAN, Tyler: Sinai security stymied by continued terrorist attacks; 2015. www.al-monitor.com/pulse/originals/2015/04/egypt-wilayat-sinai-salafist-jihad-attack-photos.html, (downloaded 06 April 2022)

[31] HUFFMAN op. cit.

[32] GOLD, Zack: The Egypt-Gaza Buffer Zone: More Harm than Good for Sinai Security, 2014. www.inss.org.il/publication/ the-egypt-gaza-buffer-zone-more-harm-than-good-for-sinai-security (Downloaded 09 April 2022)

[33] IDRIS op. cit. p. 5.

[34] SHALLATA, Ahmed Zaghloul: Conflict Flares Between Sinai Tribes and the Islamic State; The Atlantic Council, 2017. https://www.atlanticcouncil.org/blogs/menasource/conflict-flares-between-sinai-tribes-and-islamic-state/ (downloaded 09 April 2022)

[35] GOLD, Zack: Sinai Tribes: Between the Egyptian State and the Islamic State; 2015. www.inss.org.il/publication/sinai-tribes-between-the-egyptian-state-and-the-islamic-state/, (downloaded 09 April 2022)

[36] Sinai Tribes in Egypt's War on Terror; The Tahrir Institute For Middle East Policy, 2018. https://timep.org/wp-content/uploads/2018/11/SinaiTribesIssueBrief.pdf (downloaded 09 April 2022)

In 2016, the Islamic State started to lose territories, thanks to significant attacks against it by multiple sides. This meant that it couldn't support it's subsidiary with weapons, manpower, and money. Thus, the Sinai Province had to use homemade weapons and explosives against the security services. Their operations became clumsy after their leadership was bombed on the Mount Halal in 2016.[37] The Al-Qaeda tried to take advantage from this situation. The organization stayed in the peninsula previously, they had a subsidiary organization, called Jund al-Islam (Soldiers of Islam). They had an attack against the military, then they started a fight with the Sinai Province. However mostly all of the organizations were dismissed by the Province. The organizations reappeared on the peninsula in 2017, when they admitted an attack, which was made in 2015, and called the locals to fight against the Sinai Province, in a voice mail.[38]

The clapmdown of the ISIS helped the cells of Al-Qaeda to expand easier in Africa. The terrorist organization thus created the Islam and Muslim Cooperation Group, which could help concentrating collegiate their cells, and made it easier to them to strengthen their capabilities.[39] However, their expanson is slow in Egypt, because of the military's operations and the influence of the Sinai Province.

The terrorist groups tried to make attacks against tourists. One of the biggest attacks happened on 16 October 2015, at the Karnak temple. The assailants tried to attack a tourist bus at the Karnak site. Two of them had guns, and one attacker wore a suicide vest. The security men noticed them and the attackers were intercepted. Two of them were shot down, and the other attacker blew himself up. The attacks was commited possibly by the Sinai Province, because only this group used suicide bombings in their operations.[40]

The Coptic Christians also became targets. They were attacked, because the terrorist groups tried to make a rift between the Copts and the Muslims. The Sinai Province made two suicide bombings simultaniously on 9 April 2017 in Alexandria and Tanta. The Copts celebrated Palm Sunday, and the terrorists attacked two masses. In Alexandria, the attacker could bypass the security check and blew himself up in the church. The other attacker couldn't achieve the same, so he made his attack in front of the security gate. In Alexandria, there were 28 dead and 77 injured people, while in Tanta 17 and 48.[41] However, the Copts criticised the goverment,because it didn't do anything to protect them. Also there were clashes in the cities between the security

[37] SCHWEITZER, Yoram: The Weakening of Wilayat Sinai; 2016.
www.inss.org.il/publication/the-weakening-of-wilayat-sinai/ (downloaded 09 April 2022)

[38] SALEM, Ahmed: The Re-emergence of Jund al-Islam: A new chapter in the conflict between al-Qaeda and ISIS; 2017. https://www.atlanticcouncil.org/blogs/menasource/the-re-emergence-of-jund-al-islam-a-new-chapter-in-the-conflict-between-al-qaeda-and-isis/ (downloaded 09 April 2022)

[39] SAID, Omar: Clashes between Jund al-Islam and Province of Sinai: The return of Al-Qaeda? 2017. https://madamasr.com/en/2017/11/14/feature/politics/clashes-between-jund-al-islam-and-province-of-sinai-the-return-of-al-qaeda/ (downloaded 09 April 2022)

[40] MALSIN, Jared: Egypt says terror attack foiled at temple in tourist city of Luxor; 2015. https://www.theguardian.com/world/2015/jun/10/egyptian-tourist-city-of-luxor-hit-by-suicide-bomb-attack (downloaded 09 April 2022)

[41] HENDAWI, Hamza: Suicide bombers kill 44 at Palm Sunday services in Egypt; 2017. https://apnews.com/article/pope-francis-islamic-state-group-ap-top-news-international-news-bombings-88b8fef3a96e433c902a303cd5db928e (downloaded 09 April 2022)

forces, and the Copts.[42] Meanwhile in the church patriarch Twadros II. was accused that he supported the goverment's antiterrorist policy, but did nothing to defend the church. After the attacks, President Sisi decleared three months state of emergency to show the goverment's efforts against the terrorism.[43]

4.   The second half of the Sisi era (2017-2022.)

In 2017, the intensity of operations on the Sinai Province was shrunken. However, in the cities of Egypt, new groups had emerged. The most significant group was the HASM (Ḥarakat Sāwa'd Miṣr, Soldiers of Egypt, but the HASM acronym means determination). The origins of this organization wasn't clear enough. The goverment decleared them as subsidiary organization of the Muslim Brotherhood, but this claim couldn't be verified.[44] Their first attack was made in 2016, when they tried to kill Ali Gomaa Mufti, unsuccessfully.[45] Then, on 8 of October a security officer was shot to death, when he was walking to his car.[46] In their attacks, they tried to kill their target, with gunfire, they sneaked behind it, and tried to surprise the victim. They had a second type of attack, which was the bomb outrage. In this type they created home made bombs, which were hidden next to their targets. For example that happened on 09 December 2016, when a bomb was exploded next to a checkpoint in Giza Haram district, Cairo. The attack left six policemen dead.[47] These tools were used because the organization had few members, and they wanted to preserve its personnel.

The HASM operated mostly in the cities of Egypt, which means that they tried to move quickly, and made huge losses with easily made weapons. The HASM had a main goal, which was the protection of the ideology of Islam. Thus, they undertook

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[42]   HANNA, Michael Wahid: Excluded and Unequal, Copts on the Margins of the Egyptian Security State; 2019. https://tcf.org/content/report/christian-exclusion-from-egypts-security-state/?agreed=1 (downloaded 09 April 2022)

[43]   SAMAAN Magdy et al.: Egypt Declares State of Emergency, as Attacks Undercut Promise of Security; New York Times, 2017. https://www.nytimes.com/2017/04/09/world/middleeast/explosion-egypt-coptic-christian-church.html (downloaded 09 April 2022)

[44]   LAVRILLEUX, Ariane: Egypt: 'The Muslim Brotherhood has never been more disconnected from society'; The Africa Report, 2020. https://www.theafricareport.com/53933/egypt-the-muslim-brotherhood-has-never-been-more-disconnected-from-society/ (downloaded 10 April 2022)

[45]   MOSTAFA, Amir: Who's behind assassination attempt on former Egyptian mufti? 2016. https://www.al-monitor.com/originals/2016/08/egypt-assassination-attempt-mufti-ali-gomaa-gulen-turkey.html#ixzz7Q3kWhyb3 (downloaded 10 April 2022)

[46]   HORTON, Michael: Why Egypt's Nationalist Hasm Movement Could Gain Greater Traction; 2017. https://www.refworld.org/docid/590c33bf4.html (downloaded 10 April 2022)

[47]   YOUSSEF, Nour: Bomb at Checkpoint in Cairo Area Kills 6 Police Officers; 2016. https://www.nytimes.com/2016/12/09/world/middleeast/cairo-giza-bomb.html (downloaded 10 April 2022)

the bomb attack against the embassy of Miammar in 2017.[48] They said that they tried to preserve the rights of the Rohyngas with this attack.

After the militans appeared in the cities, the security services had to stop their attacks. To avoid and eliminate them, the security services tried to set up checkpoints, and close the streets, they also closed the country's western border with troops. With this operation they wanted to intercept the militants, who crossed the border from Libya. [49] Unfortunately, this couldn't stop the movement of terrorists, who continued their attacks. The security services were also patrolling in the streets, they stormed storages, seized weapons and arrested terrorists. However, we didn' know how many terrorists were arrested, because the numbers of the arrested were much higher than the assumed ones.

However, after the attacks, the detained men were executed, which means that the security forces would have made extrajudicial killings. [50]

As I have written before, the terrorists attacked tourists to stop them coming to Egypt, and made huge financial losses to the goverment. These attacks have continued. On 28 December 2018, a bomb was exploded near the pyramids of Giza. The bomb was hidden in the dustbin, and it killed three Vietnamese tourists, and their tour guide. [51] This attack was followed by another in 2019, on the same place, when a German tourist group received a similar attack. There weren't any dead, but many of them were injured.[52]

The biggest attack against the tourists was made in 2015, when possibly the Sinai Province blew up a Russian jet in the air. 129 tourists died.[53] The attackers smuggled the bomb onto the plane, thanks to the negligence of the security guards in the airport. With these attacks the terrorists tried to attack the Egyptian economy, and wanted to make Egypt lose money from the tourism. However, they couldn't scare the tourists

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[48] Egypt's Hasm militants claim attack targeting Myanmar embassy; 2017. https://www.reuters.com/article/us-egypt-security-idUSKCN1C705D (downloaded 10 April 2022)

[49] MANSOUR, Muhammad: Operations Against Hasm Continue but Security Forces Still Face Challenges; Terrorism Monitor, 2018/8. https://jamestown.org/program/operations-against-hasm-continue-but-security-forces-still-face-challenges/ (downloaded 10 April 2022)

[50] Rights group: 3,185 extrajudicial killings in Egypt since 2013; 2019. https://www.middleeastmonitor.com/20190704-rights-group-3185-extrajudicial-killings-in-egypt-since-2013/ (downloaded 10 April 2022)

[51] YOUSSEF, Adham: Egypt: bomb attack on tourist bus near Giza pyramids kills at least four people; 2018. https://www.theguardian.com/world/2018/dec/28/bomb-attack-tourist-bus-giza-pyramids-egypt (downloaded 10 April 2022)

[52] HASSAN, Ahmed M. et al.: Blast injures South African tourists near Egypt's Giza pyramids; 2019. https://www.reuters.com/article/us-egypt-security/blast-injures-south-african-tourists-near-egypts-giza-pyramids-idUSKCN1SP0E2 (downloaded 10 April 2022)

[53] Russia plane crash: 'Terror act' downed A321 over Egypt's Sinai; 2015. https://www.bbc.com/news/world-europe-34840943 (downloaded 10 April 2022)

away with the attacks. Only the COVID could shrunken the number of the tourists in 2020. But after May 2021, Egypt received 300 000 tourists per month.[54]

In 2017, there were attacks in the western border zone of Egypt. These were made by the militants, who came from the Libyan civil war. The western area is huge, arid, and it was hard to control by the military. Thus, the security forces strengthened their presence in the area, because they feared that the militans smuggles weapons and men into this area. There were attacks also before 2017. In 2013, the interior minister suffered an unsuccessful attack, because the terrrorists placed a bomb in his car. [55]After the attack, the military tightenned the contol in the western region. However, in 2015, the terrorists attacked a Mexican tourist bus, which crossed the military border zone. [56] After this incident, the miliaty tried to control the news, which had come out of the region.

However, in 2017, Ansar al-Islam (Supporters of Islam) made an attack against policemen in Baharija Oasis. In this attack, 10 police officer and 34 policemen died.[57] The group possibly had been established in Libya, where they received military training, and they entered Egypt through it's western border area. They weren't the members of the Islamic State's franchise, because they pledged their loyalty to the Al Qaeda. They made an organized attack in 2017, which means that the group contained previous soldiers. The fact that they preserved the newly recruited policemen from execution makes this claim strong. After the attack, the security forces made a huge antiterrorist operation in the area. They have managed to free one of the taken policemen, who helped them find, detain and eliminate the other members. Abdel Hamid, the lieutenant of this organization was eliminiated in a bomb attack in Libya 2017.[58] Because of the security risks of the western border area, Egypt had to intervene in the Libyan civil war. Their presence started from 2015, when they bombed the local Islamic State group, which executed local Egyptian Coptic workers.[59] In 2014, under the second Libyan civil war Egypt started to support general Khalifa Haftar, because they thought that he could bring peace, unity, and stability inside the country. Also Egypt hoped that he could put and end to the terrorist threat and banish the local Muslim Brotherhood organization.[60] Egypt didn't participate in the war itself, but helped Haftars forces with information, weapon supplies, and the Egyptian Air Force

54 Tourists return to Egypt's resorts after months of restrictions; 2021.
    https://www.africanews.com/2021/08/29/tourists-return-to-egypt-s-resorts-after-months-of-restrictions// (downloaded 10 April 2022)
55 KIRKPATRICK, David D. et al.: Egypt's Interior Minister Survives Assassination Attempt; 2013. https://www.nytimes.com/2013/09/06/world/middleeast/egypts-interior-minister-survives-attack.html (downloaded 10 April 2022)
56 Mexican tourists killed by Egyptian security forces; 2015.
    https://www.bbc.com/news/world-middle-east-34241680 (downloaded 10 April 2022)
57 MARKEY, Patrick et al.: Egypt Western Desert attack exposes front outside Sinai; 2017.
    https://www.reuters.com/article/us-egypt-security-sisi/egypt-western-desert-attack-exposes-front-outside-sinai-idUSKBN1D71QY (downloaded 11 April 2022)
58 CUMMINGS, Ryan: What Is Ansar al-Islam?; Tony Blair Institute for Global Change, 2017.
    https://institute.global/policy/what-ansar-al-islam (downloaded 11 April 2022)
59 Egyptian air strikes in Libya kill dozens of Isis militants; 2015.
    https://www.theguardian.com/world/2015/feb/16/egypt-air-strikes-target-isis-weapons-stockpiles-libya (downloaded 11 April 2022)
60 MAHMOUD, Khaled: Sisi's Ambitions in Libya; 2018.
    https://carnegieendowment.org/sada/77847 (downloaded 11 April 2022)

made bombings against terrorist targets.[61] For example, in 2017, the Air Force attacked the storages and camps of the Mujjaheddin Shura Council in Minya. However, this group wasn't active outside Libya only in the suburbs of Derna. Possibly they were targeted, because Egypt wanted to avoid the blame, that they couldn't defend it's population against the attacks of the Islamic State. Thus, they had to show, that they could manage the terrorist threat.[62] The cooperation against the terrorist threat was so strong that when Haftar's forces detained Hesham Ashmavy, the leader of al-Morabitoon, they gave him back to Egypt. Egypt sentenced him to death and he was executed in 2020.[63] After Turkey entered the war in 2020, the balance which was tipped to Haftar, was broken. The country sent 2,500 Turkish troops and 2,000 Turkish mercenaries, who fought in Syria.[64]

Morover, they started to retrain the soldiers of the Tripoli-based goverment, which meant that their force had grown enormously. To eliminate this disadvantage, Egypt supported the peace negotiations between the parties, and also retrained Haftar's soldiers for maritime special operations, risking the Turkish supply routes into Libya.[65] In 2020, the Egyptian president threatened the advancing Tripoli militias that if they crossed the Sirte-Benghazi line, the Egyptian Army would invade the county.[66]

He threatened Libya, because Egypt afraided of the growing military potential of Turkey, and the retruning Muslim Brotherhood organization. However, Egypt and Turkey tried to manage flexibly the Libyan situation. Thus, from the second half of 2020, they started again the negotiations to solve the situation in the county. They supported the ceasefire agreement of 23 October 2020, and before this agreement the parties negotiated in Cairo. Egypt realised that it had to use different tools (such as diplomacy) to avoid the Turkish advancement.[67] Despite the fact that Turkey and Egypt chose the negotiations, they have problems which can end the negotiations. For example, Turkey is willing to send the Syrian mercenaries away, because of the Egyptian diplomatic pressure, but it would leave the soldiers in the county to

[61] DENTICE, Giuseppe: Egypt's Security and Haftar: al-Sisi's strategy in Libya; 2017. https://www.ispionline.it/it/pubblicazione/egypts-security-and-haftar-al-sisis-strategy-libya-16284 (downloaded 11 April 2022)

[62] ABOULENEIN, Ahmed et al.: Is Egypt bombing the right militants in Libya? 2017. https://www.reuters.com/article/us-egypt-security-analysis-idUSKBN18R2GE (downloaded 11 April 2022)

[63] Egyptian officer-turned-extremist Hesham Ashmawy executed: Military; 2020. https://english.alarabiya.net/en/News/middle-east/2020/03/04/Egyptian-officer-turned-extremist-Hesham-Ashmawy-executed-Military (downloaded 11 April 2022)

[64] HARCHAOUI, Jalel: The Libyan Civil War Is About to Get Worse; 2018. https://foreignpolicy.com/2020/03/18/libyan-civil-war-about-get-worse/ (downloaded 11 April 2022)

[65] Egypt, UAE establish Libya naval commando squad to fight Turkey; 2020. https://www.middleeastmonitor.com/20200309-egypt-uae-establish-libya-naval-commando-squad-to-fight-turkey/ (downloaded 11 April 2022)

[66] Averting an Egyptian Military Intervention in Libya; 2020. https://www.crisisgroup.org/middle-east-north-africa/north-africa/libya/averting-egyptian-military-intervention-libya (downloaded 11 April 2022)

[67] AL-ANANI, Khalil: Egypt's Changing policy in Libya: Opportunities and Challenges; Arab Center, 2021. https://arabcenterdc.org/resource/egypts-changing-policy-in-libya-opportunities-and-challenges/ (downloaded 11 April 2022)

collaborate with the Tripoli goverment. This is unacceptable for Egypt. Furthermore, Turkey doesn't allow to send back the members of the Muslim Brotherhood to Egypt.[68]These problems will have to be solved, if the two countires would like to solve the Libyan crisis.

Meanwhile, in the Sinai peninsula there were other attacks. The biggest of them was made against a Sunni mosque in al-Rawda. 40 fighters from the Sinai Province attacked the mosque with weapons, 311 people were killid, and more than 500 men were injured.[69] This attack provoked an Egyptian answer, so the goverment decided to launch another offensive to eliminate the Sinai Province once and for all. They planned a joint operation, in which all of the military services (army, air force, navy) participated. This was unprecedent in the previous operations.[70] Moreover, the military not only conducted operations in the penisula, but also in the western border region. They tried to eliminate the supply of terrorists.[71]

The operation was started on 8 February 2018.Before the launch, the military blocked the main traffic hubs, reducing the movement of the terrorists.

The successes of the operations were publicated in the media by the military and they made statements about them regularly. The Egyptian military decleared that under one year, they killed 464 terrorists and detained 7,491. [72] However, these numbers were so huge that possibly many detained men weren't terrorists. Which means that the security forces arrested many innocent people who didn't have connection to the militant organziations. Thus, there were extrajudicial detaines and killings in the region.[73]

For the civilians the operation meant a huge pressure. The military in order to prevent the movement of the militants decleared curfew in the northern area of the peninsula. However, because of the curfew the locals couldn't get enough food, so the security forces made damages in the local food supply chain. 420,000 people couldn't receive an adequate amount of food. Moreover, the pharmacies were closed, and the locals couldn't get gasoline from the gas stations, because the military had also

[68] Egypt and Turkey seek to overhaul tense ties with frank talks on Libya; 2021. https://www.reuters.com/world/middle-east/egypt-turkey-say-they-held-frank-in-depth-talks-cairo-2021-05-06/ (downloaded 11 April 2022)

[69] YOUSSEF, Nour: Motives in Egypt's Deadliest Terrorist Attack: Religion and Revenge; 2017. https://www.nytimes.com/2017/12/01/world/middleeast/egypt-sinai-mosque-attack.html (downloaded 11 April 2022)

[70] MOHAMAD, Amer: Superficial Gains, but No Lasting Success in Sinai 2018; 2019. https://timep.org/commentary/analysis/superficial-gains-but-no-lasting-success-in-sinai-2018/ (downloaded 11 April 2022)

[71] SHAY, Saul: Egypt's Comprehensive Operation Sinai 2018: One Year On; 2019. https://www.israeldefense.co.il/en/node/37642 (downloaded 11 April 2022)

[72] MOHAMAD, Amer: Superficial Gains, but No Lasting Success in Sinai 2018; 2019. https://timep.org/commentary/analysis/superficial-gains-but-no-lasting-success-in-sinai-2018/ (downloaded 12 April 2022)

[73] STROCK Joe et al.: Security Forces Dealt with Them, Suspicious Killings and Extrajudicial Executions by Egyptian Security Forces; 2021. https://www.hrw.org/report/2021/09/07/security-forces-dealt-them/suspicious-killings-and-extrajudicial-executions (downloaded 12 April 2022)

blocked the local services.[74] The security services made buffer zones at the border, because they wanted to block the weapon smuggling operations of the militants. In order to accomplish this, the houses of locals were destroyed.[75] The use of the Internet was also blocked, because the goverment wanted to eliminate the pubblication of the successess of the terrorists. However, the militants could have reached their social media platforms, unlike the civilians, who couldn't use the basic services, for example the bank sector.[76]

The terrorists managed to made attacks, despite the significant govermental measures. The numbers of these attacks however dropped significantly, 18 per month.[77] The militant groups tried to use new tools, or they combined the old ones, to make devastating attacks against the security services. For example, they combined the suicide bombings with weapon shots. In 2018, the militans attacked a military base at Qassima. They cut the fence and entered inside the area. Then attacked the soldiers with guns, and they made chaos. After it was achieved, a suicide bomber blew himself up. They killed eight soldiers.[78] They attacked the 101st Battalion with the same manner, also heavy casualities were inflicted.[79] The militans tried to assasinate also the main officers in the area.

For example, the convoy of General Hassen al-Husseini was attacked. The general managed to survive the attack with few scratches, but his deputy was killed.[80] The Sinai Province, just like the Islamic State, used checkpoints. They set up randomly next to the main roads and hunted down the unarmed, careless soldiers, or the locals, who didn't behave as the Sharia Law demanded from them.[81]

However, in the last few years, the goverment tried to use also non-military tools. They tried to develop the economy and the social situation in the northern part of the peninsula. The goverment hoped, that if they gave new economic opportunities to locals, they wouldn't support the militants. The development was started in 2014,

[74] Between Death And Besiege – An Overview Of The Situation For Local Residents In Sinai Since The Beginning Of The Comprehensive Operation In February 2018., Report, 2019. https://egyptianfront.org/wp-content/uploads/2019/05/Between-Death-and-Besiege.2.pdf (downloaded 12 April 2022)
[75] Egypt: Looming Humanitarian Crisis in Sinai, Relief Urgently Needed After 2 Months of Army Restrictions on Food; Report, Human Rights Watch; 2018. https://www.hrw.org/news/2018/04/23/egypt-looming-humanitarian-crisis-sinai (downloaded 12 April 2022)
[76] WARD, Antonia: ISIS's Use of Social Media Still Poses a Threat to Stability in the Middle East and Africa. Rand Corporation, 2018. https://www.rand.org/blog/2018/12/isiss-use-of-social-media-still-poses-a-threat-to-stability.html (downloaded 12 April 2022)
[77] AMER op. cit.
[78] BASSIL, Annabel: Non-InternationaL Armed Conflict To Continue In Sinai?, War Report, University of Geneva, Geneva, 2019. p. 2.
[79] Wilayat Sinai targets Egyptian army stronghold; 2018. https://www.al-monitor.com/originals/2015/02/egypt-sinai-wilaya-attacks-army.html (downloaded 12 April 2022)
[80] AMER op. cit.
[81] HASSAN, Ahmed Mohamed, et al: Islamic State seeks to impose religious rules in Egypt's North Sinai; 2017. https://www.reuters.com/investigates/special-report/egypt-politics-sinai/ (downloaded 12 April 2022)

when the Engineer Corps of the military began new infrastructure developments. [82] They developed mostly the road and railway infrastructure. After it, the central goverment continued the development project. For example, they created new water banks, and introduced new irragation methods, eliminating the water wasting.[83] They will make many simultanious projects, and the goverment will use 2,69 billion dollars for it. They tried to make these project from self effort, and from monetary aids, which came from the Gulf States and from the USAID.[84] Nowadays, bridges, new roads and water banks are built. Moreover, they will build hospitals, schools and hotels.[85] The goverment's main objective is moving back the prevous residents to their home, and they would like to rehome other residents from the country. They could settle according to their jobs (as doctors, tourist guides etc.). The goverment hopes that they can make the peninsula bloom economically, and prevent the militants recruting efforts.[86]

However, the terrorists have accomodated to this new situation. They left booby traps in the locals' houses, thus, when they arrived at home, they were blown up.[87] The militants returned to their previous tactic, and left bombs beside the roads, and they tried to blow up military convoys with them.[88] Moreover, they started to use a new method, lone snipers. They were put to cities, from which the military thought to be cleaned. So their attacks could be made in surprise. The numbers of this type of operations were growing from 2018; in that year sixteen were made, at the meantime in 2020, the militants made eighteen attacks per month.[89]

What is more, the group's attacks didn't disappear either. On July 2021, the militants attacked a military checkpoint in Sheik Zuveid. They killed five troops, and many of them were injured.[90] The security forces decleared that they cleared the northern part of the peninsula, however this wasn't the case. There are many towns

[82] HANAFI, Mohamed: Egypt allocates billions for development in Sinai; 2021.
      https://www.al-monitor.com/originals/2021/09/egypt-allocates-billions-development-sinai
      (downloaded 12 April 2022)
[83] President Sisi reviews progress of Sinai development projects; 2020.
      https://egyptindependent.com/president-sisi-reviews-progress-of-sinai-development-
      projects/ (downloaded 12 April 2022)
[84] Egypt secures $2.69B for Sinai development in 2020; 2020.
      https://www.egypttoday.com/Article/3/95644/Egypt-secures-2-69B-for-Sinai-
      development-in-2020 (downloaded 12 April 2022)
[85] Egypt secures $2.69B for Sinai development in 2020; 2020.
      https://www.egypttoday.com/Article/3/95644/Egypt-secures-2-69B-for-Sinai-
      development-in-2020 (downloaded 12 April 2022)
[86] HASSAN op. cit.
[87] SWEILAM, Ashraf: At least 14 civilians killed by booby traps in Egypt's Sinai; 2020.
      https://apnews.com/article/egypt-africa-a1ef2bfa5fdb1744717cc90e76847af1
      (downloaded 12 April 2022)
[88] Egypt Officials: Bomb Kills 1 Police and Wounds 3 in Sinai; 2021.
      https://www.usnews.com/news/world/articles/2021-01-22/egypt-officials-bomb-kills-1-
      police-and-wounds-3-in-sinai (downloaded 12 April 2022)
[89] Shifting militant tactics curb development in Egypt's North Sinai; 2020.
      https://www.reuters.com/article/uk-egypt-security-idUKKBN27P0L4 (downloaded 12
      April 2022)
[90] 5 Egyptian troops killed in Islamic State attack in northern Sinai; 2021.
      https://www.timesofisrael.com/5-egyptian-troops-killed-in-islamic-state-attack-in-
      northern-sinai/ (downloaded 13April 2022)

and villages, where little terrorist groups are remained. And they will continue their attacks. The Sinai Province set up a new base in the centre of the Northern Sinai, in the town of Bir al-Abd, because it's extremely arid, and the military can't control it.[91] Despite this, the Sinai Province isn't so strong than in the previous years. To achieve this, beside the military, the tribes of Sinai made an enormous work. They helped the security forces with their antiterrorist operations and with information.[92]These operations were so successful, that the numbers of the members of Sinai Province were shrunken by leaps and bounds. Nowadays, the organization contains mostly Egyptians and Palestinians. In 2021, one of the top leaders of the organization, Abu Hamza al-Khadi, surrendered himself to the tribes in exchange for protection. He was the main lawyer and theologist of the Sinai Province, thus he authorized many attacks. With this catch, the military could identify and determine the system and destroy it easily.[93]

Conclusion

In this article, I have tried to analyze the last ten years of the antiterrorist operations. I have mainly focused on the terrorists operations and I tried to determine the answers against them. The terrorist organizations became significant forces in the country progressively. They have tried to use simple tools to inflict huge destruction. In the cities, they have made bombing and shooting attacks. In the meantime, on the Sinai Peninsula, they used suicide bombings to cause mass destruction; and as a psychological tool, creating fear inside the security forces. They also combined these tools to maximise their efforts. However, from 2017, the number of their attacks has shrunken significantly, and they didn't use – for example – suicide bombings at all. First of all, because the Islamic State, the mother organization of the Sinai Province suffered huge losses in territory, manpower and economy; thus, it couldn't support it's subordinates anymore. On the other hand, the security services have improved considerably their forces, and they inflicted huge irrecoverable losses to the terrorist group. We can add to it that the security forces made mass arrests inside the population, which means that besides the civilans, many terrorists were detained. The tribes also took their part from the fight against the militant groups. The Sinai Province made a huge mistake, when pledged loyalty to the ISIS. Due tho this loyatly, they received foreign fighters, who didn't respect the local relations, and they were violent with the tribes, kidnapping, torturing and murdering their members. With these acts, however, they pushed the tribes into the arms of the security services. They helped the security forces with important information and hunted down the terrorists.

In the cities, the terrorist had to scuffle through different problems. There were smaller groups in the mainland, and after the attacks, the security forces managed to

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[91]   Shifting militant tactics curb development in Egypt's North Sinai; 2020. https://www.reuters.com/article/uk-egypt-security-idUKKBN27P0L4 (downloaded 13 April 2022)

[92]   TIMEP Brief: Sinai Tribes in Egypt's War on Terror; jelentés, 2018. https://timep.org/reports-briefings/timep-brief-sinai-tribes-in-egypts-war-on-terror/ (downloaded 13 April 2022)

[93]   Islamic State leader in Sinai surrenders to Egyptian authorities; 2021. https://www.al-monitor.com/originals/2021/09/islamic-state-leader-sinai-surrenders-egyptian-authorities (downloaded 14 April 2022)

arrest most of their members; thus, the groups became dysfunctional. For the security sevices it was easier to find information about the groups, and arrest them. Thus, from 2018, the operations of terrorists became limited, and they used only bomb attacks against checkpoints and tourists.

The security services tried to solve the problem of the terrorist groups with mostly military-security means. They were reactive, created many checkpoints in the streets, and after the attacks, they detained the locals, who lived near to the place of the attack. The Morsi-administration tried out new things, for example, the development of the area, and gave back to the Bedouins their lands.

His successor, President Sisi started his development project mostly after the successes of the Comprehensive Operation-Sinai, in the second half of his reign, because the local groups were hostile with him, so Sisi had to deal with them first. After the weakening of the Sinai Province, the goverment could begin it's development project. They realised that with heavy weapons the terrorist threat couldn't be solved. So in a rugged area, like the northern part of the Sinai peninsula, the goverment needed the support of locals and tribes to defeat the militants. To win their support, the goverment had to develop the area economically. However, it had uneven results for two reasons. First of all, the locals didn't forget that the security forces had kidnapped, tortured and executed the members of the population. And they also critized the form of the development. For example, the Bedouins didn't like their new, easily assembled houses, because they weren't so comfortable than their previous homes.

The military was nonresilient and tried to defeat the insurgency with old methods (mass arrests and checkpoints etc.). The terrorists could avoid the soldiers, and the military prevented itself from moving, and from the independent operations, which are useful against assymetric threats. [94] Also the top management didn't set up a local commandership, which would have been able to react to the attacks of the militans. Despite this, all pieces of information were sent back to Cairo, where the leadership decided the adequate strategy. So the army could't get an operational freedom, which would have been useful against an assymetric enemy. They used tanks, and heavy weapons in the local towns, and in the countryside, which were totally useless.[95]

The goverment also cooperated with different countries against the terrorists. However, the US criticised the Egyptian military that it bought only heavy weapons. Instead of this, they had to buy small arms and use the US support to train the special forces. These tools could be used better against the militants. The cooperation with Isreal became fruitful, because Egypt received important pieces of information about the terrorist cells, and Israel made drone attacks against terrorist targets inside the country. However, Egypt had to keep this secret, because the locals didn't accept the military cooperation with Israel. Egypt had a huge strife with the United States, because Israel in many times violated the human rights.

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[94] ANANI, Khalil Al: Egypt's Counterterrorism Strategy in Sinai: Challenges and Failures; 2020. https://arabcenterdc.org/resource/egypts-counterterrorism-strategy-in-sinai-challenges-and-failures/ (downloaded 14 April 2022)

[95] MCMANUS, Allison: The Egyptian Military's Terrorism Containment Campaign in North Sinai; 2020. https://carnegieendowment.org/sada/82218 (downloaded 14 April 2022)

Thus, the United States under the Obama-administration withheld the monetary support for Egypt. In the end, after diplomatic wranglings, they sent it to Egypt, because they hoped that Egypt would have appropriated the money for useful things, for example for antiterrorist tools. However, they have bought mostly heavy weapons from it. Under the Trump-administration the money flew unbothered, and under the Biden-administration Egypt was put under pressure, because it had not spent the US money properly. After Egypt accepted the demands of the US, the money is flown there unmolested.

Egypt made equal efforts to stop the ripple effects at it's borders. Egypt tries to avoid these effects coming from the Libyan civil war. Thus, the country wants to solve the Libyan crisis, because it hopes that a strong central goverment could eliminate the terrorist threat, which can do much harm inside Egypt. At the beginning, Egypt supported general Khalifa Haftar, with money, weapons and military training. After the Tripoli-based goverment had turned the equilibrum, Egypt is interested in a peaceful solution and in the setting up of an united goverment, which would expel the terrorists from the country.

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RÓBERT VENDRICZKI[1]

FRIENDLY HELP IS ON THE WAY – THE NORTH VIETNAMESE CATHOLIC QUESTION AND HUNGARIAN-VIETNAMESE CHURCH RELATIONS IN THE 1950s AND 1960s

Absract

In 1954, as a result of the Geneva Convention, with the end of the first Indochina War, Vietnam was divided alongside the 17th parallel. Thus, the Democratic Republic of Vietnam was formed in the north and the Republic of Vietnam in the south. In the northern part of the country, led by Ho Shi Minh, the greatest threat to the strengthening of the "atheist" communist power was posed by the Catholic community, which received significant support also from Western Europe, the United States and South Vietnam. Hanoi could not resolve the Catholic issue on its own, so it turned to the Soviet Union for help. Moscow provided help through the countries of the Soviet bloc, Czechoslovakia, Poland and Hungary. The Hungarian Catholic Church delegation led by Pál Brezanóczy also played an active role in stabilizing the northern part of the country.

*Keywords***:** Democratic Republic of Vietnam, Catholic population, Soviet Union, Soviet bloc countries, Catholic ecclesiastical delegation.

Introduction

Barely after the end of the first Indochina War (1946–1954), the Democratic Republic of Vietnam (DRV) established closer ties with the "friendly" Socialist countries and the Soviet Union to strengthen its power position in North Vietnam.[2] Partly to support the country's economy, culture and its domestic and foreign policy aspirations, as well as to provide effective assistance for the reunification of the country divided by the 1954 Geneva Convention alongside the latitude 17th[3], the DRV gave priority to these systems of relations, and by 1955, important foreign and domestic political events had taken place, which also greatly influenced the policy of

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[1] ORCID 0000-0002-4058-8860

[2] Subject: Directives establishing relations between the Hungarian People's Republic and the Democratic Republic of Vietnam (Annex), Hanoi, 25 January 1964, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 1, 001752/1964. XIX-J-1-j.

[3] Moscow's Indochina policy until the early 1960s was not always clear. This was also made clear to them by Ho Shi Minh when the Supreme Soviet of the Soviet Union was in North Vietnam. At the time, in a joint conversation with Yuri Vladimirovich Andropov, the leader of North Vietnam, he commented on the relationship between the DRV and the Soviet Union. "Sometimes we don't understand the steps of the Soviet Union, but we support them because we trust the Soviet Union." Subject: Visit of a delegation of the Supreme Soviet of the Soviet Union to Vietnam, Hanoi, 4 February 1963, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 5, 002063/16/1963. XIX-J-1-j.p.5.

North Vietnam.[4] A comprehensive system of relations had been developed between the Hungarian People's Republic (HPR) and the DRV, covering all areas of life. Political relations with the HPR were really strengthened, with the establishment of the Hungarian foreign mission in Hanoi in January 1955.[5] The first interstate agreements were concluded in 1955, and this included also the establishment of a system of relations between the Hungarian and Vietnamese Catholic churches.[6] The aim of this study is to present the plight of the Catholics in North Vietnam and the Hungarian-Vietnamese ecclesiastical relations, in the light of my research pursued so far,[7] based primarily on Hungarian archival sources, as well as to supplement the research on this topic and the related political situation too.

North Vietnam requests help

As early as 1955, Hanoi asked the friendly Communist countries for help in the "fight against the clerical reaction", because of the Catholic Church, with French and later American support, sent in North Vietnam clergy, loyal to the "Western" regime. Already that year, the HPR had the opportunity to send one or two "suitable" priests to North Vietnam, like Poland and Czechoslovakia, who could have provided the Catholic priests and parishes there in the North with church equipment and clothing.[8] They could have served also politically. However, this did not materialize. Instead, in 1956 from the DRV, a church delegation arrived in the Hungarian People's Republic to study the relationship between the state and the church, which was successfully used to "strengthen Socialism".[9] The aim of North Vietnam was similar to the Hungarian exmple, that is, to reorganize the state order with the help of the episcopal faculty, which would then have continued to operate with the support of the state.[10]

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[4] North Vietnam was primarily interested in major international events in the Far East, such as the "mutual security treaty" between the United States and Taiwan which also had an indirect impact on the country's foreign policy.
Subject: Study of the current international situation and the proceedings of the Moscow conference. Budapest, 9 February 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 1, 002155/1955. XIX-J-1-j.

[5] Subject: Relations of the Hungarian People's Republic with the Democratic Republic of Vietnam [in 1957], in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, 00031/14/1957.p.1. Prior to the conclusion of the agreement, Hungary was represented in Vietnam by the Ambassador to Beijing and Vietnam in Hungary by the Ambassador of Moscow in Vietnam. Subject: Transcript of the Vietnamese Foreign Minister. Beijing, 16 September 1950, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 1, 525/Szig.biz. -1950. XIX-J-1-j.

[6] On 16 December 1955, the first "Hungarian-Vietnamese" aid agreement was signed. Under this agreement, various goods worth 8.5 million rubles were delivered to the territory of the DRV free of charge.

[7] I carried out the major part of my research in the National Archives of Hungary (Magyar Országos Levéltár; MOL.) and the State Security Historical Archives (Állambiztonsági Szolgálatok Történeti Levéltára; ÁBTL) in Budapest.

[8] Subject: Religious freedom in Vietnam, Hanoi, 28 July 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098/2/1955. XIX-J-1-j. p.7.

[9] Subject: Visit of the Hungarian ecclesiastical delegation to the DRV (Annex). Hanoi, on 15 November 1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 005824/1961. XIX-J-1-j.

[10] Ibid. p. 1.

Hanoi did not allow the Catholic Church and other churches operating in Vietnam to use their believers for anti-state purposes.[11]

In Vietnam, five religions played major roles in the 1950's: Buddhist, Caodaism, Hoa Hao, Protestant and Catholic.[12] In the North, the Catholic religion had the greatest power at this time.[13] The Catholic religion itself appeared, when Spanish and Portuguese missionaries arrived in the country and set up missions. In the 17th century, the Indochina Peninsula was already declared a mission area by the Vatican, and then the Jesuits began their activities. Catholicism lived its heyday in Indochina during the French colonization, but religion was used not only for peaceful purposes but also to consolidate power and restrain the population. After France was defeated in the first Indochina war by the Democratic Republic of Vietnam led by Ho Chi Minh City, the plight of the Catholics in the north changed somewhat.[14] On July 4, 1954, the Government of the DRV regulated the relationship between the state and the Catholic Church in its Decree no. 234. Under the decree, priests were required to educate their faithful members in a patriotic spirit, in addition to exercising their vocation and to fulfill their civic duties, in exchange for the state not interfering in the internal affairs of the church. If religion was used to disguise political activity, it entailed severe punishment.[15] By 1958, the northern government had not been able to fully control the church, because it did not enshrine church formation and did not specify that the incorporation of church leaders required government approval, nor was the state's financial support for the church specified.[16] The livelihoods of the priests themselves were not easy either, because they were not paid. Their source of livelihood was the land left by the state during land reform, which was cultivated free of charge by Catholic believers. They gave a financial allowance for church services that helped the priests make a living.[17] The Catholic Church at that time did not yet have a cardinal, an archbishop, or any other leader of Vietnamese descent. Instead it was being led by American Bishop John Dooley and bishops from other countries,[18]

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[11] Subject: Development of the relationship between the Hungarian people's democratic state and the Catholic Church in Hungary, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 005862/1955. XIX-J-1-j.

[12] In the DRV, Buddhism was considered the main religion under its Decree of Religious Freedom of 4 July 1954. Subject: Religious freedom in Vietnam. Hanoi, 28 July 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098/2/1955. XIX-J-1-j. Protestants came to Vietnam from the United States and could only recruit believers in major cities. They numbered a few thousand and had temples in Hanoi, Tourane and Saigon.

[13] Ibid. p. 2.

[14] Subject: Religious issues in the DRV. Hanoi, 27 May 1958, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004215/1958. XIX-J-1-j. p.1.

[15] In the initial period, cadres working in the Catholic countryside did not take the decree seriously and grossly violated Catholic freedom of religion. The government will later take strong action against cadres who violate the regulation. Subject: Dinner with Comrade Du Qui, Head of Department, Ministry of Information. Hanoi, April 25, 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 006081/1955. XIX-J-1-j. pp.1-2.

[16] Subject: Religious issues in the DRV, Hanoi, 27 May 1958, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004215/1958. XIX-J-1-j. p.1.

[17] Ibid.p.6.

[18] Depending on the state permit, the operation of foreign priests is permitted by Decree No. 234 and obliges them to comply with the laws and regulations of the DRV. Subject:

and the influence of the Paris Mission Center and the Vatican was strongly felt. According to Hanoi, the priests used masses and sermons to incite contradictions between Catholics and non-Catholics in order to weaken the DRV, in economic and political terms, and with it the reunification of the country.[19] In the cultural field, one of their main efforts was to restore the independence of Catholic schools and break away from the Ministry of Culture.[20] Based on the sources, it can be stated that the northern state was not yet able to fully control the Catholic Church at that time and this posed a national security risk to them.

Figure 1: Bishop John Dooley[21]

Religious freedom in Vietnam, Hanoi, 28 July 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098/2/1955. XIX-J-1-j. p.6.

[19] Their activities were disguised, according to the Vietnamese, as an internal affair of the church, and Dooley, the leader of the church, forbade believers to participate in the work of the Catholic committee and to join the peace movement. Ibid. p.4.

[20] In the area of the DRV, there was no religious education in public schools, even in an optional form, only in eight schools under the church leadership they recognized. There were even private schools, in these schools the curriculum had to be strictly adhered to and religious education was allowed three hours a week with the consent of the parents. Subject: Religious freedom in Vietnam, Hanoi, 28 July 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098/2/1955. XIX-J-1-j. This practice was probably developed by members of the Vietnamese Catholic priestly delegation sent to friendly countries. In Hungary, according to Legislative Decree No. 5 of 1949, the Council of Ministers regulated school religious education. Under the first paragraph, in order to ensure freedom of participation in religious instruction, it was prohibited to obstruct religious instruction by force or deception. He also forbade religious education to be used for political purposes against the existing state order. Section 2 regulated religious education in primary school and grammar schools, so it did not allow it in other schools. Parents also had to be informed of the place and time of enrollment according to its order and manner. A parental consent statement or certificate was enough for attending theology classes. GERGELY Jenő: A katolikus egyház Magyarországon 1944-1971. (The Catholic Church in Hungary 1944-1971. Translated: Róbert Vendriczki.) Kossuth Kiadó, 1985. Négy évtized sorozat, pp. 164-166.

[21] Source: https://www.ouririshheritage.org. (downloaded 10 September 2021)

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The DRV classified the priests into three major groups, because of the above. (1) Those who sympathize with the system, who also participated in the work of the Catholic Liaison Committee and the Patriotic People's Front of Vietnam.[22] (2) Opponents of the regime, who have previously been disciplined or imprisoned by the DRV's government and have taken further strong measures.[23] (3) The largest part was made up of the majority of the priests, who opposed the state, but also feared it.

DRV measures to resolve the Catholic issue

The government has, naturally, taken steps to remedy this "domestic political problem" as soon as possible. They began by organizing political courses for the lower clergy, until then they conducted regular educational work on religious issues among the members of the Vietnamese Communist Party, because they sought a better relationship with the Catholic Church. Therefore, the state also provided financial support, helping to rebuild more than 300 churches and eight priestly seminaries. In addition, the state declared Christmas, Easter, and All Saints' Day as official public holidays. With these measures, winning the masses remained the most important goal for the government. However, Catholic leaders did not seek to develop relations, according to the Vietnamese. As a result, a Patriotic Catholic Liaison Committee was formed in 1955, with the goal of winning and mobilizing believers and the clergy for the benefit of the party.[24] Therefore, in addition to Hanoi, zone - and some county committees were set up. The committee itself belonged to the Patriotic People's Front of Vietnam, because it did not have an exact status. Some priests also helped with their work, and they also published the only Catholic newspaper in North Vietnam. Hanoi also asked for the help of friendly countries in order to win over Catholics, so on 10 October 1955, a five-member Czechoslovak Catholic delegation arrived in Hanoi at the invitation of the Vietnamese Catholic and Peace-Loving Patriots Liaison Committee. .[25] The head of the delegation was Petra Rostilay, editor-in-chief of the Czechoslovak People's Party's daily newspaper "People's Democracy". He was accompanied by Moravian Bishop Micoucof, who was awarded the International Peace Prize in 1955, and was accompanied by three other church members. The delegation immediately went to work and on 01 November, attended, the "Day of the Dead or All Saints" church ceremony and on 4 November, they spoke at a rally where they tried to win the support of Catholics for North Vietnam. In addition, the delegation visited several cities or towns, where the Catholic population was in the overwhelming majority. Perhaps the greatest result of the trip was that after visiting the clergy, local Catholics put it down to move it to South Vietnam. In addition to the Czechoslovak Catholic Church, the Poles also sent a Catholic priestly delegation to

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[22] Their number was 20 and the high clergy did not sympathize with them.

[23] Their number could be as high as 30 and they also enjoyed the support of the high clergy. Subject: Religious freedom in Vietnam, Hanoi, 28 July 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098/2/1955. XIX-J-1-j. p.6. The DRV government has repeatedly taken action against the high clergy. For example, in 1956, he expelled a foreign priest from the country and "allowed" two people to leave. There were also priests (4 people) convicted of organizing "family masses".

[24] Ibid. p. 6.

[25] Subject: Visit of a Czechoslovak Catholic delegation to Vietnam. Hanoi, 12 December 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 5, 00417/1955. XIX-J-1-j.

Vietnam, but they were not as successful as the Czechoslovak delegation was. All they could manage to do was to get the Vietnam Catholic priestly delegation to see Poland again.[26]

However, the work of Catholic delegations also had positive effects on the relationship between the Communist leadership and the northern Catholic population. As a result, the DRV also established the State Committee on Religion in 1956,[27] which was responsible for liaising with Vietnam's historic churches, monitoring the implementation of the government's religious policy and proposing related measures, and studying religious policy issues.[28] However, the Catholic issue had not only a religious but also an economic aspect. The country's Catholic population had the best rice-growing areas and the better coastal areas in their hands, because they sustained themselves from agriculture and fishing.[29] They lived in the north, in the most fertile countryside, the so-called. Mekong River Delta.[30] These were brought under the influence of the state, during the land reform.[31] The plight of the Vietnamese clergy was much worse than that of the Europeans, in terms of livelihood. Furthermore, they also lacked their church attire because everyone had a reverend of the color and fit that they could access.[32] The distribution of the Vietnamese Catholic population itself and the the churches in the north and the south were also quite disproportionate, in the late 1950s. According to Hungarian sources, there were 9,257 churches in the whole country, of which 8,236 were in the north and 1,021 in the south. In these, approximately 1,540 Catholic priests served, of which 384 in the north and 1,156 in South Vietnam. The number of Catholic believers was estimated at one and a half million, 700,000 in the north and 800,000 in the south, and they had 20 bishops.[33] Their leader was John Dooley, an American citizen of Canadian descent, a member of the Jesuit order. According to the Vietnamese, he was a man of trust in the Vatican and had a close relationship with the French main delegation in North Vietnam. Therefore, it was believed that the Vatican's instructions had been carried out through the couriers of the main delegation and they conveyed also the spy reports. However,

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26 Ibid.
27 He was directly subordinated to the Prime Minister.
28 Ibid. p. 7.
29 Ibid. p. 9.
30 Subject: Introductory visit to Comrade Hoang Quoc Viet, President of the Trade Union Center, Hanoi, 29 October 1958, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 5, 006468/10/1958. XIX-J-1-j.
31 Subject: Domestic and economic situation in the DRV. Bui Cong Trung/Chairman of the National Economic Committee, Member of the DRV Central Executive/and Ung Van Khiem / First Deputy Foreign Minister, Member of the DRV Central Executive / based on strictly confidential information received from comrades. Hanoi, 26 August 1956, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 007218/1956. XIX- J-1-j.
32 On 30 October 1961, the teaching staff of the Academy of Theological Sciences was hosted by Assistant Professor Simon Güntner, who celebrated his name day. This lunch was also attended by the Apostolic Governor of Eger, Pál Brezanóczy, who willingly answered questions about his trip to Vietnam, where he shared this information with those present, among other things. Subject: Governor Pál Brezanóczy's report on his experiences in Vietnam. 2 November 1961, in ÁBTL. 3.1.2. – M-30613/1/173, Report of cover agent János Kiss, volume II. p. 160.
33 Subject: Religious issues in the DRV, Hanoi, 27 May 1958, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004215/1958. XIX-J-1-j. p. 1.

this could not be proven. Even this year, the northern leadership forced three high-ranking French clergy to leave their diocese,[34] which greatly influenced the escape of Catholics to the south, which was true not only of the priests, but also of the faithful.

Hungarian reports highlight that, according to Hanoi, there were several reasons for the Catholics to move south: By June 1955, many had left the northern part because, according to the Geneva Convention, they had gone to South Vietnam in 1956, due to elections aimed at reunification and would have been able to return to their original place of residence after reunification.[35] The main reason cited was the propaganda expressed by Vietnamese priests. The main slogan of this was that the territory of the DRV was "God gone to the South", and "Virgin gone to the South".[36] They were also easily persuaded by the Southerners to leave their homes and their families, but there were also people among them who wanted to return to the north. The Hanoi government was handling the Catholic issue quite rigidly.[37] This degenerated to the point where they were also distrustful of the Catholics who fought with them on the same side.[38] Furthermore, already during the war against the French, in the areas under their control, the local state apparatus began the so-called a Marxist-Leninist retraining course for priests, they tried harder to persuade nuns and priests to marry, and they also arbitrarily confiscated priests' property. Therefore, Vietnamese church leaders watched the government's actions with hostile eyes.[39] The Hanoi leadership, after realizing that this was not the most expedient line to address the

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[34] These clergy were Mgr. Jacque, coadjutor of the bishop of Langon, Nordeux abbot, of the parsonage of Lang-Son, and Guilbert abbot of the parsonage of Tat Ke. Subject: Introductory visit to Comrade Hoang Quoc Viet, President of the Trade Union Center, Hanoi, 29 October 1958, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 5, 006468/10/1958. XIX-J-1-j.

[35] The election itself was falsified in the South and instead Ngo Dinh Diem established the Republic of Vietnam with American support, with Saigon headquarters in South Vietnam, of which he was also Prime Minister. Subject: Situation in South Vietnam Hanoi, 14 February 1956, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 00411/1/1956. XIX-J-1-j. p. 3.; and Subject: Biography of Ngo Dinh Diem. Hanoi, 9 January 1956, In MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 00352/1956. XIX-J-1-j.

[36] HUNG, Nguyen Quang: The Relationship Between Vietnamese Communists and Christians During the Vietnam War. p. 9. https://sspace.snu.ac.kr/bitstream/10371/42712/3/The%20Relationship%20Between%20Vietnamese%20Communists%20and%20Christians%20During%20the%20Vietnam%20War.pdf. (Downloaded 10.09.2021.) This was so well done, according to Ung Van Khiem, the Foreign Minister of the DRV, that many Catholics - fighting on the side of the "Resistance" in the First Indochina War- also believed in them and moved south. Subject: Religious issues in the DRV, Hanoi, 26 January 1955, In MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098. XIX-J-1-j.

[37] Subject: Situation in South Vietnam Hanoi, 14 February 1956, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4 00411/1/1956. XIX-J-1-j. p.7.

[38] Nor did the Polish contingent on the International Control Commission understand that the northern leadership had put every Catholic under a hat, be it a person fighting on the side of the Vietnamese or just opposing the regime. Tárgy: Visit to the Head of the Polish Delegation to the International Control Commission, Hanoi, 3 February 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004145/1955. XIX-J-1-j. p. 2.

[39] Subject: Religious issues in the DRV, Hanoi, 26 January 1955, In MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098. XIX-J-1-j. p. 1.

Catholic issue, sought another way to win over believers. At the Congress of the People's Front (Lien-Viet) in January 1955, the task was to involve in public life as many priests and believers as possible, so that they could have had a good enough impact on the religious masses.[40] As a result of these excesses, the number of Catholics leaving the northern territories increased. Priests loyal to the government and Catholics returning from the Saigon refugee camps were also used to stop this. Mention is also made of the large-scale subversive activities of hostile intelligence,[41] and malnutrition.[42]

The Vietnamese Catholic question itself was also used by the Saigon government to its own advantage. According to the Northern Government, "they want to use the Catholic question decisively to torpedo the Geneva ceasefire. They are making every effort to provoke armed incidents between blind Catholics ready for emigration and popular authorities."[43] The Ba-Lang incident was cited as an example. "Due to the advice of their priests and the influence of their propaganda, about 1,500 Catholics locked themselves in the Catholic temple and monastery of Ba-Lang near the coast and asked for their immediate relocation to South Vietnam. Of these, 400 young people were equipped with dorongs, knives, and even revolvers. They attacked the soldiers of the People's Army and killed six of them. To counter this, a larger unit of the People's Army intervened and disarmed and arrested the armed elements. The International Control Commission was immediately allowed to evacuate the case.[44] Diem and the Americans gave an massive response to the whole issue in the world press.[45]" However, significant refugees from the DRV also supported the then Prime Minister of South Vietnam, Ngo Dinh Diem.[46] However, there were also Catholics of southern descent who voluntarily went or fled north between 1955–1958.[47] The population from the north was housed in refugee camps, which were also supported

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[40] At the 8th Plenary Session of the Central Command of the Vietnamese Labor Party in September 1955, the task of the Lien Viet Front was expanded with new programs, which set out to unite the country under the Geneva Convention, among other things. Subject: 8th Plenary Session of the Central Command of the Vietnamese Labor Party, Hanoi, 7 September 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 9, 009074/1/1955. XIX-J-1-j.

[41] Nguyen Quang Hung also highlights the involvement of the CIA in his study and said an important reason for the escape of Catholics to the south was even that most Catholics feared the communist regime. HUNG op. cit. pp. 9-10.

[42] Subject: Dinner with Comrade Duc Qui, Head of Department, Ministry of Information, Hanoi, 25 April 195, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 006081/1955. XIX-J-1-j. p.2.

[43] Subject: Religious issues in the DRV, Hanoi, 26 January 1955, In MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098. XIX-J-1-j. p. 2.

[44] The establishment of the International Control Commission (ICC) was guaranteed by the 1954 Geneva Convention, which ended the first Indochina War. In this, three countries, Poland, Canada and India, served as peacekeepers throughout Vietnam.

[45] Subject: Religious issues in the DRV, Hanoi, 26 January 1955, In MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 004098. XIX-J-1-j. p. 2.

[46] Although the majority of the Vietnamese Catholic population initially supported Ngo Dinh Diem, there were also Catholics who did not sympathize with his politicies. Subject: Situation in South Vietnam Hanoi, 15 December 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 00411/1/1955. XIX-J-1-j. p. 7.

[47] Subject: Land reform in South Vietnam, Hanoi, 20 May 1959, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 002719/1/1959. XIX-J-1-j.

by the U.S. government with larger sums, [48] but only a portion of the sums reached them, due to the corruption of the Saigon system.[49] Mention must be made of the fact that tensions developed between the Catholics who fled from the north to the south and the southern Catholic population. In exchange for their support, Diem donated lands and equipment and animals needed to cultivate them. However, the land they received was not cultivated properly, their equipment and animals were sold which created tension.[50] For this reason, there was a division among Catholics, which weakened the political and support base of the South Vietnamese government and strengthened the position of the North in the South.[51]

Hungarian Catholic Church delegation in Vietnam

In 1959, Hanoi continued to consider very harmful the "reactionary clergy" serving the North Vietnamese Catholics.[52] Therefore, in March of that year, the DRV government, through the Hungarian Embassy in Hanoi, requested information from the Hungarian government on its policy towards the Roman Catholic Church. They were particularly interested in the agreement between the Hungarian government and the Churches and its implementation, as well as in the attitude of the lower clergy towards the state and the government.[53] They also asked for further help from Hungary. On 11 July 1961, Nguyen Van Hong, Chargé d'Affaires of the Embassy of the DRV, invited representatives of the Hungarian Catholic Church to the Second Vietnamese Catholic Congress.[54] With the undisguised aim of asking them for help in settling the relationship between the state and the church, in accordance with socialist interests.[55] The Hungarian delegation was asked to appear in the following composition: a Catholic bishop, a person from the lower clergy and "a comrade who is well acquainted with the situation of the Hungarian Catholic Church and the problems related to the Catholic religion in general, and can discuss these issues. with the Vietnamese comrades." Furthermore, in connection with the Catholic bishop and

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[48] According to Hungarian reports, on 18 January, 1956, Washington transferred $ 37,000,000 to relieve the plight of Catholic refugees and $ 700,000 to their aid. Subject: Situation in South Vietnam Hanoi, 14 February 1956, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4 00411/1/1956. XIX-J-1-j. p. 6.

[49] This information was provided by Michel Limbourg, a French journalist for L'Humanité who was sent by the French Communist Party as a liaison to South Vietnam. He received the information himself from the French envoy to South Vietnam, according to the report. Subject: Dinner with Comrade Limbourg, Hanoi, 25 April 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 9, 006085/1955. XIX-J-1-j.

[50] Subject: Situation in South Vietnam Hanoi, 15 December 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 4, 00411/1/1955. XIX-J-1-j.

[51] Ibid.p.4.

[52] Subject: Church policy of the Hungarian government, Budapest, 14 May 1959, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 002245/1961. XIX-J-1-j.

[53] Subject: Church policy of the Hungarian government, Budapest, 16 February 1955, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 002491/1955. XIX-J-1-j.

[54] This was organized by the Patriotic Committee of Vietnam Catholic Priests.

[55] Subject: Comrade Károly Olt, President of the State Ecclesiastical Office, Budapest, 14 July 1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 005824/1961. XIX-J-1-j. 2

the priest, their request was that they preferred to send a person who was also recognized by the Vatican and considered lucky to be able to communicate in a foreign language, mostly French or English.[56] Before the Hungarians responded to the request on the merits, the 5th Territorial Department submitted the invitation to the Agitation and Propaganda Department of the Central Committee of the Hungarian Socialist People's Party, and based on the response received there, Frigyes Puja. The proposal was submitted to the Foreign Affairs Department of the Central Committee of the Hungarian Socialist People's Party for a resolution through the Ministry of Foreign Affairs.[57] Prior to accepting the invitation, the selection of the members of the delegation began and the following persons were appointed to travel:[58]

(1) dr. Pál Brezanóczy, who was the apostolic governor of Eger, as they could not send a person with the rank of bishop.[59] He spoke French well and was considered politically appropriate, and was also entrusted with the leadership of the delegation, because diplomatic activity was an important part of his church work.[60]

(2) dr. György Vitányi, who was a parish priest in Budapest, a "peace priest" and spoke French.

(3) Jakab Herling, who was the head of the clerical peace movement in the State Ecclesiastical Office. He was the one who represented the DRV State Ecclesiastical Office against Catholic priests opposed to the system on the issue of church-state relations. The delegation was prepared for the mission in North Vietnam by mainly Jakab Herling.

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[56] A person not recognized by the Vatican could not have been credible and acted effectively before the Vietnamese Catholic priests.

[57] Subject: To Comrade Frigyes Puja. Budapest, 3 August, 1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 005824/1/1961. XIX-J-1-j.

[58] Subject: To Comrade Frigyes Puja. Budapest, 14 August 1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 005824/2/1961. XIX-J-1-j.

[59] The concept of the apostolic governor was defined by Jenő Gergely in his book as follows. *"Apostolic Administrator – Apostolic Governor (administrator apostolicus) is a governor appointed temporarily or permanently by the Pope to head the diocese. This could have happened if the episcopal (archbishop) chair was not filled or if the (bishop) was prevented from performing his office. "*(Translated by Róbert Vendriczki). GERGELY Jenő: A katolikus egyház Magyarországon 1944-1971. Négy évtized sorozat, Kossuth Kiadó, 1985. p. 220.

[60] SÁGI, György: Brezanóczy Pál útkeresése Egyház és pártállam között. In: TÖRÖK, József, TUSOR, Péter, TÓTH, Krisztina (Szerk.): Katolicizmus Magyarországon a II. Vatikáni Zsinat korában: Tanulmányok és inventárium; Budapest: MTA-PPKE "Lendület" Egyháztörténeti Kutatócsoport; Gondolat, 2015. – Pál Brezanóczy's search for a path between the Church and a party state. In: TÖRÖK, József – TUSOR, Péter – TÓTH, Krisztina (Eds.): Catholicism in Hungary during the Second Vatican Council. Studies and inventory; Budapest, MTA-PPKE "Momentum" Church History Research Group, Gondolat Publishing office, 2015. pp. 113-151. (Translated: Róbert Vendriczki) https://www.academia.edu/37071884/Brezan%C3%B3czy_P%C3%A1l_%C3%BAtkeres%C3%A9se_Egyh%C3%A1z_%C3%A9s_p%C3%A1rt%C3%A1llam_k%C3%B6z%C3%B6tt._In_T%C3%B6r%C3%B6k_J%C3%B3zsef_Tusor_P%C3%A9ter_T%C3%B3th_Krisztina_szerk._Katolicizmus_Magyarorsz%C3%A1gon_a_II._Vatik%C3%A1ni_Zsinat_kor%C3%A1ban_Tanulm%C3%A1nyok_%C3%A9s_invent%C3%A1rium._Budapest_MTA-PPKE_Lend%C3%BClet_Egyh%C3%A1zt%C3%B6rt%C3%A9neti_Kutat%C3%B3csoport_Gondolat_2015._pp._113-151. (downloaded 20 October 2021)

(4)   dr. Ferenc Lippényi, who was the chief rapporteur of the State Ecclesiastical
       Office, traveled as an interpreter.[61]
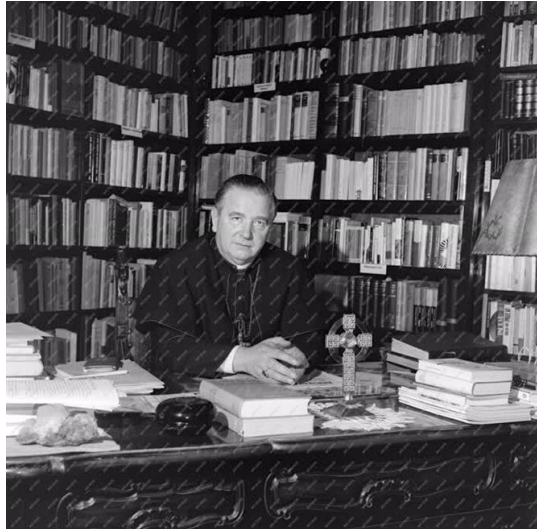
Figure 2: Pál Brezanóczy, Bishop of Eger[62]

On 30 September 1961, the Hungarian Catholic delegation was allowed to travel to North Vietnam.[63] The sending of the delegation was partly considered a return visit, as in 1956, a five-member Vietnamese priestly delegation had visited Hungary. The members of the Hungarian delegation left on 1 October 1961,[64] and spent five days in Beijing,[65] and arrived in Hanoi the next day on October 6, and were in North Vietnam from 6-22 October 1961.[66] According to the invitation, the Hungarian delegation – walking through the Catholic countryside – effectively helped the [67]relationship between the state and the church; this was reinforced by their participation in the Second Congress of Vietnamese Catholics. In the course of their work, they sought to win over believers in the north for socialism and sought to have a positive impact on

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[61]   Subject: To Comrade János Nagy Ambassador Extraordinary and Plenipotentiary, Budapest, 9 September 1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 2, 005824/3/1961. XIX-J-1-j.
[62]   Source: https://archivum.mtva.hu. (downloaded 10 September 2021)
[63]   Ibid.
[64]   Ibid.
[65]   The delegation was received at the airport by Vu Xuan Ky and Ha Than Bien, Chairman and Vice-Chairman of the Liaison Committee of the Catholics of Vietnam, and dr. István Németh on behalf of the Hungarian Embassy in Vietnam. In addition to them, there was Nguyen Dinh Van, the Hungarian spokesman for the European Department of the North Vietnamese Ministry of Foreign Affairs, and the party mobilized several Catholics.
[66]   In addition to the ecclesiastical delegation, a Hungarian parliamentary delegation was also present in North Vietnam at that time. Subject: Hungarian parliamentary delegation to the DRV. Hanoi, 13 November 1961, 006446/1/1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box 5, XIX-J-1-j.
[67]

Catholics who had fled to or lived in South Vietnam to support DRV policy.[68] In order to strengthen "socialism", the head of the delegation, Pál Brezanóczy, made several speeches and statements, which also received enormous Vietnamese press and radio publicity. He attended and even spoke at the Vietnamese Catholic Peace Meeting on his way to Vietnam, where local bishops did not attend, where he explained the position of the peace movement. The delegation, under the leadership of Pál Brezanóczy, did such a good job, according to the Vietnamese, that "the success of their work far surpassed the Vietnamese ideas."[69] They were more successful than the previously sent Czechoslovak and Polish church delegation. Later, Ho Chi Minh received the members of the delegation for a private conversation. After that, during the conversation, Ho Chi Minh spoke about how many Catholics in North Vietnam had fled to the south, because part of the clergy had voiced that God had left the DRV and quite a few parishes are depopulated and there are already few Catholic priests in the country. According to Pál Brezanóczy, this was an heresy, a false teaching on the part of the clergy.[70] During their stay abroad, they even took part in excursions and visited several churches. After the trip to Southeast Asia, the MNK gave another task to the leaders of the Hungarian Catholic Church, as in 1962, Endre Hamvas, Pál Brezanóczy and Miklós Beresztóczy represented the Hungarian Catholic Church at the World Peace Congress in Moscow, where Vietnam was also on the agenda. They attended also the Vatican Council, which took place from 1962 to 1965,[71] where Hamvas and Brezanóczy "redeemed the ticket to Rome" on their previous trips to Moscow and Vietnam, respectively.[72] Brezanóczy, the archbishop of Eger, – with him the Hungarian Catholic Church – continued to support the cause of Vietnam, speaking at the World Peace Congress in Helsinki between 10–17 July 1965, against American intervention in Vietnam, which he considered an aggressive demonstration of strength.[73] Furthermore, the archbishop supported the first meeting of the season-opening patriotic committee of the Patriotic People's Front of Heves County, with a series of lectures on "For the Freedom and Peace of the Vietnamese People",[74] and as

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[68]   In order to win over the Southerners, Pál Brezanóczy repeated his speech at the Second Vietnamese Catholic Congress on Hanoi Radio's programs for South Vietnamese.

[69]   Subject: Visit of the Hungarian ecclesiastical delegation to the DRV, Hanoi, 15 November 1961, in MOL, Vietnamese Relations, Foreign Ministry Documents, Top Secret, Box2, 005824/1961. XIX-J-1-j. p.1.

[70]   Subject: Governor Pál Brezanóczy's report on his experiences in Vietnam. 2 November 1961, in ÁBTL. 3.1.2. – M-30613/1/173, Report of cover agent János Kiss, volume II. p. 160. The same can be found in the ÁBTL. 3.1.2. - In report M-30613/1/180 entitled 'Report of János Kiss', written to Major József Szeifert on 3 November 1961 (Subject name is the same). pp.166-167.

[71]   GERGELY op. cit. p. 172.

[72]   Subject: Opinions on the Synod, Győr, 26 September 1962, in ÁBTL. 3.1.2. – M-36924/2, Report of cover agent Zoltán Marosi about Pál Brezanóczy. Volume IV. pp. 272-273. (Zoltán Marosi had previously prepared the report on 15 September 1962 and handed it over to police captain István Molnár.) and Subject: News From Hungary- FEC, Volume VIII., number. 41, 12 October 1962, in ÁBTL. 3.2.1. – Bt-917/5 Balázs Kátai, „Kurt Nikolai".

[73]   SZABÓ Csaba: A Szentszék és a Magyar Népköztársaság kapcsolatai a hatvanas években; (Relations between the Vatican and the Hungarian People's Republic in the 1960's. Translated by Róbert Vendriczki); Budapest, 2005. p. 291.

[74]   The speaker at the meeting was Károly Matolcsi, foreign policy editor of the newspaper "Magyar Nemzet", and a delegate from the Vietnam Liberation Front also gave a presentation on the situation in Vietnam. At the end of the lecture, Sándor Rásky, Reformed

a result, fundraising events were organized for North Vietnam.[75] The archbishop of Eger supported the cause of Vietnam until his death in 1972.

Conclusion

It can be stated that the leadership of DRV took every opportunity to stabilize its power, and for this, it had to settle also the Catholic issue properly, because it was a national security problem for the North Vietnamese leadership. The countries of the Soviet bloc also took an active part in this arrangement. They helped to make the system of relations between the government and Catholics in the North more open and thus, indirectly supported the fulfillment of the main goal, the reunification of the country, under the auspices of the Communist leadership. These countries were used by the Soviet Union, in accordance with its political interests in Vietnam in the 1950s and early 1960s. Moscow's primary goal was to increase its influence at the expense of China and strengthen its leading position within the Communist camp. The communist Hungary, led by János Kádár, also helped in this, because it was able to identify itself with Khrushchev's political line in its foreign policy.

Bishop, and Dr. Miklós Beresztóczy, Secretary General of the Peace Committee, wished the Vietnamese a lot of success in their struggle and peace initiative.

[75] Subject: About István Fias of a Roman Catholic priest. Recsk-Parádfürdő, 13 October 1966, in ÁBTL. 3.1.2. – M-42004, Report of Agent Sándorfalvi, Volume II., pp.67-68. (István Tas handed over the report to Police Captain.). Note: István Fias was the parish priest of Bodony village in Heves county at that time.

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