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SOLDIERS' CODES OF CONDUCT IN DIFFERENT COUNTRIES AROUND THE WORLD. A COMPARATIVE OUTLOOK

Patrice MOMPEYSSIN

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In all countries around the world, the duties of the soldier are codified in detail, but in very different ways, according to the various histories, and cultural backgrounds of the respective Nations. As this soldier has the right to legally use a powerful lethal force, a lot is required from him, which is normal. He is now most often a professional. He has mainly to master perfectly his weapons, to respect the Law of Armed Conflicts and to apply the principle of humanity. But his leaders have to guide him and his Nation to understand and support him.

Key words: *code of conduct, responsibility, ethical behaviour, armed forces, civil society.*

This article is based on a study started in 2011 in the framework of a partnership between the French association Civisme Défense Armée Nation (CiDAN) [1], and the foundation Charles Léopold Mayer for the Progress of Mankind [2]. This foundation is very much attached to the dialogue between civilians and military people. A lasting Peace is not possible without talks in confidence between them. This foundation is also strongly attached to the development of responsibility and ethical behaviors, in all professional areas, at all levels. The aim of CiDAN is to promote good relations between armed forces and the civil society. The link between the two organizations is obvious. Armed forces will not be respected by their own populations, media and public opinion, if their behavior is not proper.

The study was pursued in the framework of the International

Society for Military Ethics in Europe (EURO-ISME) [3]. The work is not exhaustive but gives a good idea of the current practices and documents.

The author of this article got documentation from around the world including:

- Europe : France, Germany, United Kingdom, Netherlands, Portugal, Finland, Spain, Romania;

- outside Europe : Colombia, USA, Russia, Kirghizstan, Israel, Japan, Senegal, Canada, China;

- International Organizations: United Nations, Organization for Security and Co-operation in Europe (OSCE) [4], ODIHR (Office for Democratic Institutions and Human Rights) [5], Economic Community of West Africa States [6];

- and even the code of the Taliban (reported by the Red Cross), which obviously cannot be taken as a reference [7] since these Muslim

'students' apply strict rules, but not in accordance with human rights.

These codes appear under different forms, from the small plastic coated card, in the pocket of the soldier (France) [8] up to several laws and regulations (Germany) [9]. Many countries produce specific documents (Romania). Lastly, some countries require from the soldier to pronounce an oath at the end of the initial training (Russian Federation). The short card can be the last piece of a complete set of documents describing the rights and duties of the soldier (France).

All these documents have many common points, generally stressing the followings duties of a good soldier [10]:

- fulfilment of the mission,
- spirited research of victory and/ or refusal of the defeat,
- service of the Nation, Fatherland, State, People, Party,
- physical bravery and moral courage, up to the sacrifice of one's own life,
- sense of honor,
- discipline and respect for hierarchy,
- comradeship and contribution to unit cohesion,
- professionalism and exemplary behavior,
- neutrality [11], restraint [12],
- respect for traditions,
- honesty, unselfishness and frankness,
- discretion, no disclosure of secret information,
- and, lastly, an ethical (moral) behavior.

The first observation is that we ask a lot of the soldier, which is normal in

a way, when we consider his power to use legal force, by delegation of the State, which can lead to the deaths of friends (including him) and foes. But is it not too ambitious? The soldier remains a human being, who is not perfect. He has indeed duties but also rights, often limited. His commanders have the responsibility to respect him and the Nation to support him. The British have perfectly understood this aspect in creating the covenant (moral agreement), between the soldiers and their Nation, with the reconnaissance that they give more than they receive.

All these common points are normal if we consider that:

- the profession of a soldier is the same in all countries worldwide,
- most of these countries have signed the same treaties and conventions establishing the Law of Armed Conflicts (Geneva and La Haye conventions, bans on anti-personnel mines chemical weapons, etc.).

Specificities come first on the purpose of the codes. In some countries each service (Army, Navy, Air Force, Police) has its own code (Colombia). In others, the code is common for all military people and civilians working for the Ministry of Defence (Romania). In Canada, the code is specific to the levels of command (officers, NCOs and soldiers). Most codes are professional codes which express all the duties of the soldier but some focus on ethical issues (Canada, Finland). However, the lack of references to an ethical behavior in synthetic codes does not mean that the concerned country does not take care of this aspect.

A few codes require from the soldier to report and oppose unlawful acts (Canada, Finland). Lastly, sometimes, the texts specify the penal sanctions in case of unlawful acts. The fear of punishment does not indeed make a good soldier, who has to adhere to ethical values in full conscience, but this fear can help him to take good decisions in periods of intense stress, providing a sort of deterrent protection.

In all studied cases, the soldier has to fulfill his mission [13], serving his fatherland, State or Nation, putting his life at risk.

It is not the soldier's aim to kill an adversary, on delegation of his State, but it is sometimes the result of his actions, when he uses lethal force, in the last resort, in fulfilling the mission. This fact is very rarely expressed distinctly, except in the USA, to our knowledge.

In the US Army soldier's creed [14], it is written: *"I am ready to be deployed, to engage and **destroy the enemies of the USA in close combat**"*.

In the US Marine Corps creed [15], one can read: *"This is my rifle. There are many like it, but this one is mine. It is my life. I must master it as I must master my life. Without me, my rifle is useless. Without my rifle, I am useless. I must fire my rifle true. **I must shoot straighter than the enemy who is trying to kill me. I must shoot him before he shoots me**"*.

The advantage of this formulation is to remind the tragic but necessary vocation of the soldier. The inconvenience is that it forgets the notion of moderation. But we should not caricature the US creed. The US chain of command dedicates a lot of

efforts to ethical issues, as we can see in the International Society for Military ethics, grouping most of the teachers of this subject in the military academies in the US.

The British do not have a code on a card, but each service has a publication on values and standards. And they dedicate a full chapter on ethics in the doctrine publication on operations. It is outstanding to recognize the importance of ethics on tactics. We can read: *"Soldiers have the privilege of being able to use lawful armed force, potentially to **take life, while minimizing suffering and the brutality of war**"*.

The French synthetic code is a professional one, but insisting on an ethical behavior:

- *"**Mastering his force, the soldier respects his adversary and take care to spare the populations**"*

- *"He obeys to the orders, in the respect of laws and Customs of War, as well as international conventions"*.

In the Law on the code of defense, it is clearly written that the soldiers must not obey an order which is obviously not in accordance with the Law of Armed Conflicts. It is important to keep in mind for France this notion of mastering the use of force which is perfectly explained in the document *Fundamentals and principles of the profession of arms in the Army* (1999): *"the use of force must be efficient. All means and energies are turned towards the success. **That can be opposed to the respect of human lives. This contradiction must be overtaken by the notion of mastered force, which***

is based on excellent military skills and on enlightened consciences. All the complexity and nobleness of the soldier's vocation is summarized in this phrasing. This enlightened conscience is acquired by training and education”.

If some codes refer to the respect of God, the French requires perfect neutrality on the religious, philosophic or political aspects. Lastly, the French soldier must be able to take initiatives and be flexible. We can see there the weight of the history of the countries. In France, the code must be placed in the framework of the Wars of religions, the revolutions, the independence wars of its former colonies.

Germany, which founds the behavior of its soldiers on the concept of the citizen soldier (Innere Führung) has defined on a small card the questions that the soldier has to ask himself in case of an ethical dilemma [16]:

- verification of the legality of the orders,
- ‘the public eye’: what would be the reaction of the public opinion if this order is carried out?,
- the ‘truthfulness test’: is the information gathered exact?,
- respect for the golden rule: the ethics of reciprocity,
- respect for the categorical imperative (according to Kant).

This checklist must obviously be translated and taught in simple terms, in order to be applied in a few seconds, by a soldier who is not a philosopher.

The Canadian Army has gone very far in the ethical considerations in its booklet “serve with judgment” [17] defining an “ethical warrior”, who must show physical but also

moral courage. Among its tenets one can find the following:

- the Army ethos is defined as the identity card of values and as a moral compass; the ethos guides the moral behavior and is what one does when nobody is observing;
- the soldier has to report the offenses to the Law of Armed Conflicts and take the appropriate measures to end them,
- each unit must have an ethical coordinator and has to establish an assessment of the ethical risks,
- there are specific chapters for officers, NCOs and soldiers;
- the document includes an excellent approach of ‘asymmetrical’ warfare, in which the adversaries do not respect the Law of Armed Conflicts (by using, for example, human shields), which leads to difficult ethical challenges;
- it takes into account the risk of collateral damages and the possible dilemma sometimes between the protection of the life of its own soldiers and those of innocent civilians,
- lastly, zero tolerance must not be taken for zero failure. An error remains always possible in the ‘fog of war’. It must not be confused/mistaken with a deliberate fault by will or indifference) and risk is part of the profession of arms.

It is evident that these documents must not be only statements of good intentions. Their content has to be taught, known, checked, applied, and the faults must be punished.

The situations are thus very different, regarding the presentations and the contents, depending on the countries and their various histories,

cultures, traditions, legal backgrounds.

The small plastic coated card is useful but not sufficient. It must be based on a full spectrum of laws, regulations, doctrines, and detailed rules of engagement for each operation. The soldiers, as well as the NCOs and officers, must receive strong education and training, both at theoretical and practical level. As a result, the ethical behavior has to become a reflex, printed definitively in their conscience.

Most of the codes ask in fact the soldier, who is now in most countries a professional, to be firstly a good human being and citizen, applying values such as patriotism, professionalism, honesty, integrity, solidarity.

The soldier is then ready to sacrifice his life, as well as the policeman or fireman also. The soldier and the Policeman (or 'Gendarme') [18] have the right to use lethal force, but the policeman generally for self defense only, and in a limited way.

The real specificity is that the soldier has a considerable deadly firepower. He is not responsible for the decision to go to war, which is political (*jus ad bellum*). But he has to control his force and master his weapons, respecting the principles of necessity, humanity, proportionality and discrimination (*jus in bello*). Currently, in the context of asymmetric conflicts, he often faces opponents who respect no rule, who, for example, take as hostages innocent civilians (terrorism, human shields, etc.), trying to provoke the wrong reaction of the soldier, to take advantage of the fact that the 'ethical warrior' has to respect the

Law of Armed Conflicts. This kind of adversary tries to make the most of this apparent weakness in the short term. The soldier must not fall in the trap of searching for immediate efficiency. The end never justifies the means. What is required of him is however considerable. It is one among many reasons why the war should remain the last resort, because it places the combatants in tremendous dilemmas and difficulties. The codes must not be an umbrella, a protection for the hierarchy and politicians (it is only the soldier's fault if he does not fulfill his duties). The codes must be a guide and a help. The soldier must be supported by his nation and must receive extensive education and training on military ethics. Last but not the least, he must receive firm orders from his leaders on this issue, leaders who themselves must be convinced of the importance of ethics.

NOTES AND REFERENCES

- [1] CiDAN website : www.cidan.org.
- [2] FPH website : www.fph.ch.
- [3] EUROISME website: www.euroisme.eu.
- [4] code of the military and political aspects of security. This document was adopted during the 91st plenary session of the CSCE special committee for security cooperation, in Budapest, 13 December 1994 (FSC/Journal No 94). DOC.FSC/1/95 3 December 1994.
- [5] Handbook on Human Rights and Fundamental Freedoms of Armed Forces Personnel. Published by the OSCE Office for Democratic Institutions and Human Rights (ODIHR). www.osce.org/odihr © OSCE/ODIHR 2008 ISBN 978-83-60190-53-1
- [6] Project of Code of Conduct of

the West African Defence and Security Forces. Preliminary version concluded during the meeting of the Security and Defence Committee, 30-31 October 2006, Ouagadougou, Burkina Faso.

[7] The Layha for the Mujahideen: an analysis of the code of conduct for the Taliban fighters under Islamic law: <http://www.icrc.org/eng/resources/documents/article/review-2011/irrc-881-munir.htm>.

[8] <http://www.defense.gouv.fr/terre/bloc-les-essentiels/code-du-soldat>.

[9] recalled in the joint regulation ZDv 10/1 « Innere Führung » (2008).

[10] The soldier is there a general term for all the military service men, whatever their rank.

[11] With rare religious references. In Columbia, article 7 "I accomplish God's will".

[12] No public critics of the Government policy and decisions.

[13] Excepting in the code of the UN soldier (Blue Helmet). <http://cdu.unlb.org/UNStandardsOfConduct/TenRulesCodeOfPersonalConductFor>

BlueHelmets.asp.

[14] <http://www.army.mil/values/soldiers.html>.

[15] http://www.usmcpres.com/heritage/marine_corps_rifleman%27s_creed.htm.

[16] defined by the Zentrum Innere Führung der Bundeswehr.

[17] Strategic edition "Duty with Discernment", CLS guidance on ethics in operations, Lieutenant-colonel R.J.Walker, CD, Ph.D., Army Ethics Officer. Directorate of Land Concepts and Design, Kingston, Ontario (2009) ISBN 978 1 100 11857 4.

[18] A gendarme, like in Romania, is a specific Military Police Man. In France, the "gendarmes" have a military status but belong now to the Home Minister (Ministry of Interior). In peace time they have traditional civilian police missions. Generally speaking, the police works in towns when the "gendarmerie" is in villages. In operations, the gendarmes have military police missions. The European Gendarmerie Force have units from France and Romania.

THE MILITARY COUP IN MALI, 22 MARCH 2012. REFLECTIONS ON THE DEMISE OF DEMOCRACY AND THE IMPORTANCE OF CIVIL – MILITARY RELATIONS

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The coup in Bamako, on 22 March 2012 both gave lie to the apparent stability of Mali as a democratic country and resulted in the taking of power of an assortment of armed combatants in the North of the country, which resulted in armed intervention by France. This article is about the coup itself that created the power vacuum allowing the insurrection to grow and ultimately take power in the North. The authors have developed a framework for analyzing civil – military relations they believe is more useful than other available frameworks in understanding the role of the military in politics.

Key words: *Coup in Mali, Civil - Military Relations, Al-Qa'ida in the Islamic Maghreb (AQIM).*

1. INTRODUCTION

In this article we build on the conceptual framework of Samuel E. Finer in *The Man on Horseback: The Role of the Military in Politics*, and use the case study of the North West African country of Mali. We believe that any analysis of democratic civil – military relations must be attuned, as Finer's book so convincingly demonstrates, to the potential for a military coup to overthrow a democratic regime [1]. While there may be some areas of social science in which conceptualization has minor implications, civil – military relations is not one of them since, at least in our formulation, how civilian decision-makers deal with the armed forces, and other security institutions, can, as in the case of Mali, result in very serious consequences. We realize that

the case of Mali may be particularly dramatic given the long history of insurgents in the North of the country and the fact that the demands on the armed forces for fighting insurgents seriously increased after the collapse of the Muammar el-Qaddafi regime in Libya in August 2011 [2]. Even so, we believe that sooner or later most armed forces will be required to do something concrete by the civilian leaders and, if the requirements we posit for control and effectiveness are not fulfilled, the democratic regime may well be overthrown [3].

2. THE MILITARY COUP IN MALI

2.1. Background on the Coup

Mali gained independence from France in 1960, and became a one-party socialist style dictatorship under President Modibo Kéita until

1968, when a military coup led by Moussa Traoré removed Kéïta from power. Traoré remained President until 1991, when Amadou Toumani Touré (dubbed ATT) – an army officer - staged a coup that overthrew Traoré [4]. Since then, according to all surveys or sources we have consulted, Mali was one of the few democracies in Africa, which everybody in the international arena praised [5]. In this regard, in 2011 (and even in 2012), the widely respected Freedom House listed Mali as one of five democracies in Africa [6]. Not only did Freedom House list Mali as “free” in terms of freedom of political rights and civil liberties but it also listed it as “free” in terms of freedom of the press, a status many older as well as Second and Third Wave democracies in Europe and Latin America still lack [7].

All of this came to a quick and violent end with the military coup on March 22, 2012, a few weeks before the democratic elections scheduled for April, when Touré would follow his predecessor’s example and step down at the end of his two constitutionally permitted terms [8]. On March 22, a group of junior officers and enlisted soldiers, led by Army Captain Amadou Haya Sanogo, overthrew the elected government of Touré, looted the presidential palace, seized members of the government, suspended the Constitution, imposed a curfew, and closed the country’s borders [9].

The coup was followed by instability and violence in the capital of Bamako, and quickly in the loss of Malian government control in the Northern half of the country (including the well-known tourist destination of Timbuktu) to an array of four major insurgent groups, which had long been operating in the North of Mali but which consolidated their power after

the fall of the dictatorship in Libya (the groups will be discussed later in this paper). Dioncounda Traoré, then 70 years old, was appointed interim head of government until July 31, 2012, when new elections were to be held. The interim government has been challenged by the existence of conflicting internal divisions, continuous military meddling in politics, corruption and mismanagement within state institutions, as well as harsh economic constraints due to a national recession and revenue crisis [10]. The transition was delayed due to Traore’s health problems after he was beaten by loyalists of Captain Sanogo. On August 20, 2012, a new government was announced, within which many ministers were considered close to the coup leader (with some reports emphasizing they were actually selected by the military) while none of the ministers had ties to ATT [11]. On December 11, 2012, under arrest, Mali Prime Minister Cheick Modibo Diarra announced his resignation and the resignation of his government. A new Prime Minister Django Sissoko was appointed [12]. In May 2013, the interim government announced that general elections would be held on July 28, 2013.

2.2. The Rebels

The main groups competing, or at times cooperating, for power in the disrupted context of “pre-“ and “post” coup Mali are the following [13]:

1) The Azawad National Liberation Movement (MNLA), which was created in 2011 from the merger of existing Tuareg groups (including those who went to Libya during the Qaddafi rule and came back after the collapse of his dictatorship), is a secular revolutionary movement fighting for establishing a pan-ethnic independent state in Azawad. While

MNLA allied with Ansar Dine and MUJAO (to be discussed below) initially, it now opposes Islamic jihadist groups. On April 6, 2012, the MNLA declared independence from Mali with the creation of the Republic of "Azawad" in three Northern counties. Despite attempts to seek legitimacy for Azawad's independence by invoking United Nations charter and separatist aspirations going back to 1958, two years before Mali's independence from France, no foreign government has so far recognized Azawad [14].

2) Ansar Dine, also known as Ansar al Deen, Ansar Eddin or Ansar al Dine, ("Defenders of the religion" in Arabic), which was established in 2011 with the goal to impose the Shari'a across the whole country (yet without disputing Mali's territorial integrity).

3) Al-Qa'ida in the Islamic Maghreb (AQIM) is the former Algerian Salafist Group for Preaching and Combat (GSPC), renamed in 2007, after the group officially joined Al-Qa'ida central in 2006. AQIM was established in the North of Mali without encountering any opposition from the Malian government, and includes combatants of Algerian, Mauritanian, Senegalese and Malian nationalities, loyal to Osama Bin Laden's legacy [15]. AQIM uses ransom money from kidnapping of Western citizens as well as drug-trafficking to fund itself.

4) The Movement for Unity and Jihad in West Africa (MUJAO), which emerged in 2011 from combatants who defected from AQIM, due to "the marginalization of black African members" within AQIM [16].

In 2012-2013, two more groups emerged from the previously discussed four.

5) Signed-in-Blood Battalion

(also known as the Signatories for Blood) is an AQIM breakaway faction supporting global jihad, created in 2012 [17].

6) Islamic Movement for Azawad (IMA): is a movement is an Ansar Dine breakaway faction created in January 2013, after France commenced military intervention in Mali [18]. IMA expressed its willingness to negotiate for a peaceful settlement of the crisis in Mali, as well as their readiness to fight "extremism" and "terrorism" [19].

The Tuareg groups had been operating in the North and rebelling against the Malian State since the early 1950s (more frequently since the 1990s). Such rebellions led to the adoption of several peace accords including the National Pact of 1992, and the Algiers Accord of 2006 [20]. Nevertheless, lack of implementation of said accords only increased the Tuareg grievances. As David J. Francis notes, "Between 1985 and 2009 the government signed several peace deals and ceasefire agreements after every violent Tuareg rebellion, without addressing on a long-term basis the fundamental problems of the marginalisation and exclusion of the Tuareg minority. The promises by successive governments of greater political autonomy and devolved rule for the Tuaregs in the north never materialised." [21] What distinguished the January 2012 context from previous rebellions, however, was the strong Islamist vibe in the traditionally nationalist Tuareg groups, which, coupled with the fall of the Qaddafi regime in Libya in 2011, helped the rebels consolidate their power in North Mali. As Mireille Affa'a-Mindzie argues, "Groups like Ansar Dine (Defenders of Faith) had ties to ideologically motivated external groups such as Algeria-based al-Qaida in the Islamic

Maghreb (AQIM). Added to that was the proliferation of heavy weapons after the downfall of Libyan leader Qaddafi, making for a volatile situation.” [22]

2.3. Foreign Intervention

Clearly, since the coup to early January 2013 the unstable political situation in Bamako coupled with the alliances between the Tuareg and Islamist groups paved the way for the rebels to advance and seize the main Northern Mali cities - Timbuktu, Gao and Kidal, then central Mali city of Konna – threatening to advance all the way to Bamako [23]. Originally a UN – sponsored military force was planned to fight the various insurgents in order to retake the North of Mali. ECOWAS, African Union, as well as other partners, agreed in the fall of 2012 to an intervention plan for retaking the North. The plan involved 3000 troops provided by Mali, 3000 by ECOWAS, intelligence and logistics support, as well as aerial cover and surveillance by France and UN, and training of Malian troops by the EU [24]. However, while the international military intervention to combat militants and retake the North was planned to take place in the Fall of 2013, the advancement to central Mali and possible capture of Bamako, which would have had a deleterious impact on not only Mali, but also on the whole region, prompted the Malian president to seek military assistance from France in January 2013. France, also concerned with the impact that a rebel-dominated Mali have on the region and beyond, but which has its particular interests in Mali (given the high number of French citizens living or traveling to and from Mali, as well as of various business and economic ties with Mali and the region) began air attacks on

the insurgents on January 11 (under the name of Operation “Serval”) as they were moving South and were feared to capture the capital, Bamako, if outside military assistance was not quickly provided [25]. French troops were joined by an ECOWAS-led force in late January, while the European Union started in March to provide training to the Malian armed forces to help them boost their effectiveness [26]. The operation was approved unanimously by the UN Security Council, which underscores the shared international concern about the mounting extremism and armed conflict in Mali. Since the launch of the operation, ECOWAS-led African-led International Support Mission to Mali (AFISMA) troops (e.g. French, Mali, Chad, etc.) have recaptured important territories in the North of Mali, including Timbuktu, Gao, and Kidal, took prisoners, and killed several hundred, including important Al Qaeda leaders such as Abdelhamid Abou Zeid, one of the top ranking Sahara commanders of Al Qaeda in North Africa [27]. Despite these accomplishments, Islamists “melted back into desert and mountain hideaways and have begun a small campaign of harassment and terror, dispatching suicide bombers, attacking guard posts, infiltrating liberated cities or ordering attacks by militants hidden among civilians.”[28] In addition, the rebels conducted terrorist attacks. In sum, while one could argue that the intervention has been successful in pushing the rebels away from the main Mali cities, one still cannot assess its further impact on Mali’s future and / or return to democracy. The international community acknowledges that a solution to the situation in Mali requires a

multipronged approach by Mali, as well as its regional and global partners and allies: diplomatic, political, humanitarian, economic, and security (including the problem of counterinsurgency)[29].

All of these developments made France consider an incremental withdrawal of its troops and AFISMA's replacement with a UN Force. In March 2013, the U.N. Secretary-General Ban Ki Moon stated: "Our worry is that [the jihadists] could reappear, and that could affect the countries of the region." [30] On April 25, 2013, the United Nations Security Council unanimously adopted Resolution 2100 of 2013, which established the Peacekeeping Force for Mali (United Nations Multidimensional Integrated Stabilization Mission (MINUSMA), to replace AFISMA, effective July 1, 2013. Extremely significant, MINUSMA will operate under Chapter VII of the UN Charter, and will be comprised of some 11,200 troops, 1,440 police, to replace AFISMA [31].

The initial vacuum in power created by the coup, which is highlighted above, was extremely important in allowing the situation described above to happen. As the very highly – regarded North Africa expert, Roland Marchal stated: "As expected, [by him in an earlier publication] the coup in Bamako on March 22nd 2012 was more a symptom of the crisis in Mali than the first step to its recovery. The crisis actually deepened and was reshaped by new dynamics, including the growing role of jihadi groups such as al-Qaeda in the Islamic Maghreb (AQIM) and the Movement for Unicity (Tawhid) and Justice in West Africa (MUJWA)."

[32] Equally important, and currently receiving increasing attention in serious scholarly work, are the reverberations from the coup in three major areas. First, the need for a legitimate government to take control over the armed forces, which of course made the coup and are still to some degree involved in power, in order for them to become more professionally competent to be able to work with the French and other African armed forces, to include Chad, Nigeria, Niger among others, and to do so in a way that respects human rights. Free and fair elections, in particular elections that the North will perceive as credible, are the first step to ensure this. Second, to establish a government that is able to reengage with the United States, and thereby receive military and other aid beyond solely humanitarian assistance, which was cut off after the coup [33]. And, third, the need to establish a government that can in fact negotiate with the various groups in the North, and especially the Tuaregs with the goal to establish a workable and long term "solution" to the problems of decentralization or recognition of different ethnic groups [34]. In short, the coup has had very serious and continuing negative repercussions.

Currently, as Wolfram Lacher and Denis M. Tull argue, "it is still unclear what impact the French intervention will have on the balance of power in Bamako. France, AFISMA and EUTM Mali will seek to curb the coup leaders' influence. However, even if they are successful, the army leadership will attempt to capitalise on the fact that external actors depend on cooperation with the Malian army for their intervention in the north." [35]

3. ANALYSIS OF THE COUP UTILIZING SAMUEL FINER'S FRAMEWORK

In a country like Mali, where the democratic system was problematic even before the coup, we strongly identify with the following statement by Samuel E. Finer. “Instead of asking why the military engage in politics, we ought surely ask why they ever do otherwise. For at first sight the political advantages of the military vis-à-vis other and civilian groupings are overwhelming. The military possess vastly superior organization. And they possess arms.” [36] If we employ Finer’s framework for analysis we find that the military had, in Finer’s terms, both the mood and disposition to intervene. For Finer the mood can consist of self – awareness, overwhelming power, and grievance. The opportunity is most likely created when a civilian regime must increasingly rely on the military.

In our own work on civil – military relations, which we developed for more consolidated democracies, we have elaborated on Finer’s framework by conceptualizing civil-military relations in terms of both democratic civilian control and military effectiveness. Specifically in terms of Mali, we believe there is sufficient evidence to conclude that the catalyst for the coup on 22 March 2012, and the support it quickly received from broad sectors of the armed forces, can only be understood in terms of the perception of the armed forces, which was largely accurate, that the government was not providing them with the necessary means to be effective in military terms. This was the oft-repeated allegation of the coup leader, Captain Amadou Haya Sanogo, who, together with other coup leaders publicly stated that they were

frustrated with the lack of effective management of the defense sector by Mali’s government (especially when attempting to confront the rebellion in the North) [37]. Coup leaders lamented the unwillingness of the Ministry of Defense to provide weapons and other supplies (including food) to soldiers fighting the Tuaregs in the North, and the Minister’s refusal to respond to the subsequent rank-and-file complaints that they were not properly equipped to fight the rebels [38]. Indeed, as the CRS report notes, “rebel gains, combined with mismanagement and corruption within the senior command ... demoralized many Malian troops and undermined support for President Touré... Military commanders’ failure to protect troops from the massacre, which some analysts saw as having AQIM involvement, entrenched grievances within the ranks and among military families.” [39] This analysis is also supported by what we saw “on the ground”, through participant observation and interviews, during two one week visits, in July 2010 and September 2011. By the time of the second seminar, after the fall of Muammar el-Qaddafi and decrease of foreign tourism to Mali by 90% due to the precarious security situation in the North, the Malian officers in the seminar made it clear they were very concerned about their ability to respond to security problems. In short, civilian control was jeopardized, or negated, by the inability or unwillingness of the Mali government to provide the armed forces with the means they required in order to be effective. While we consider these observations unexceptional, and drawing directly from Finer’s work, we find we must expand on why we use this broader

framework for analysis of civil – military relations.

3.1. A Myopic Approach to Democracy and to Civil – Military Relations

Our observation above on the cause of the coup should be obvious, but it is not since civil – military relations has come to be conceptualized only in terms of democratic civilian control. That is, if there is any consideration at all to the security or military dimension, as most studies of democratization do not even include the security forces. And, when academics do include the military, it is exclusively in terms of democratic civilian control. As Peter Feaver states in his 1999 review article: “Although civil – military relations is a very broad subject, encompassing the entire range of relationships between the military and civilian society at every level, the field largely focuses on the control or direction of the military by the highest civilian authorities in nations states.” [40] This observation is further buttressed by the scholarly literature on new democracies, where the exclusive focus is asserting democratic civilian control [41].

While there are understandable historical reasons for the conceptualization of civil-military relations as exclusively asserting, and consolidating, democratic civilian control, it cannot accommodate what is happening in the “real world” of the relationships of the civilian policy – makers with the armed forces. We thus propose a broader, and we believe, more relevant framework for the conceptualization. This conceptualization emphasizes two main themes. First, the need

for developing institutions for both control and effectiveness; and, second, a focus on the necessary but not sufficient requirements for both. Here we encounter, at least for civilian decision- makers, the challenges of adopting a more relevant framework. To create institutions, requires attention and effort, and the payoff in terms of votes generally appears problematic. Further, in our framework, to achieve effectiveness requires not only a plan, or strategy, but also institutions to cooperate with the armed forces and other security forces, and resources in the form of money and personnel. These are very demanding, and few political leaders are willing to make the types of commitment necessary. Our argument is: if scholars and decision – makers would begin to think in terms of this framework, they can better deal with the myriad of challenges and issues that arise between civilian decision makers and the security forces, to include armed forces, national police, and intelligence services [42].

Democratic civilian control of the armed forces must indeed remain a central part of the civil-military relations framework, especially with regard to new democracies, and most importantly those that emerge from military dictatorships. Nevertheless, it is not sufficient to describe civil-military relations in the twenty first century in terms of control alone, and Mali is a case in point, and even more so, judging from the country’s history, as civilian control was precarious. From the perspective of making effective security decisions and policies, which requires “functioning” security forces, civil-military relations must involve more than control. In a democracy, policy

makers craft and implement security decisions and policies that are in service of safeguarding democratic values, national interests, and the citizens themselves; successful policies, however, go hand in hand with effective security forces. We must remember that even when civilian control is unquestioned, as in the United States, this control by itself is no guarantee that the policy-makers will make good decisions, or implement policy in such a way as to result in military success. On the other hand, the exclusive focus on the military versus the other security forces is detrimental to understanding the larger and more complex relationships concerning democracy and security forces, particularly when we consider the very wide spectrum of interchangeable roles and missions. The concept should, then, include the effectiveness of all security forces in doing their jobs, at the optimum cost possible – that is, efficiently.

4. CONCLUSION

Beginning with the military coup in Mali that has huge implications for regional and, as evidenced by the French military intervention on January 11, 2013 and the UN Security Council decision under Chapter VII on 25 April 2013, international security, we argue that a, if not the, cause is a poorly understood approach to civil-military relations that focuses exclusively on democratic civilian control. While understandable, we argue that this focus is insufficient and must be balanced and be combined with equal attention to what is required for armed forces to be effective.

NOTE ON SOURCES

The literature on civil – military relations in Africa is limited. In this article on Mali there are three main reasons why, we believe, we have adequate information to be able to describe and analyze reasonably accurately. First, the co-authors spent one week in July 2010 and another week in September 2011 in Bamako, Mali, conducting seminars on intelligence reform for intelligence professionals from several Francophone countries in North Africa. We used the seminars as a form of participant observations, and beyond the seminars conducted interviews with local Malian civilians and civilian and military officials at the U.S. embassy. Second, due to the coup of 22 March 2012, and the subsequent conflict in the North involving a wide ideological spectrum of combatants, with the resultant armed combat involving at least France from 11 January 2013, there is a great deal of attention given to Mali. There is periodic and extremely good reporting in the New York Times, originally by Adam Nossiter, who was based in Bamako and has been willing to communicate with the authors, as well as in The Washington Post, The Economist, and British Broadcasting Corporation (BBC) News. A very wide variety of think tanks and non-governmental organizations throughout Europe and North America have reported extensively on the situation in Mali. In particular we found the “Mali: Eviter L’Escalade. Rapport Afrique No 189-18 juillet 2012” very useful. We can also cite “Mali: Civilians Bear the Brunt of the Conflict” and

Mali: Five Months of Crisis. Armed Rebellion and Military Coup by Amnesty International, London, 2012; "ECOWAS in Face of the Crises in Mali and Guinea-Bissau: A Double-Standard Dilemma?" from IPRIS in Lisbon, August 2012; Anouar Boukhars, "The Paranoid Neighbor: Algeria and the Conflict in Mali" Carnegie Endowment. The Carnegie Papers, October 2012; and, as can be seen in the endnotes, various articles from FRIDE, Norwegian Peacebuilding Resource Centre, London Review of Books, European Union Institute for Security Studies, and the U.S. Institute of Peace. There are at least two governments interested in the situation as evidenced by the following two publications: Alexis Arieff and Kelly Johnson, "Crisis in Mali" Congressional Research Service Report for Congress (R42664) of 2012 and 2013, and Andrei Belik, Nela Grebovic and Jeff Willows, A Policy Briefing for Wayne G. Wouters, "Friction Along the Sahelian Fault Line: Azawad and Ethnic Conflict in Northern Mali" Ottawa: Privy Council Office, 2012. Third, we capitalized on the information contained within the Defense Institution Reform Initiative papers, which are prepared and periodically updated by a team at the Center for Civil-Military Relations (CCMR) (including one of the authors of this article) for the Office of Secretary of Defense, and which are based on a review of secondary source documents, as well as on discussions between CCMR experts and AFRICOM. We used unpublished in depth research analyses on the Tuareg and Al Qaeda

groups in the region written by CCMR colleague Lawrence E. Cline, former intelligence officer and expert in Islamically-based insurgencies, and José Olmeda, Dean of the Faculty of Political and Sociological Sciences at the Universidad Nacional de Educación a Distancia of Madrid.

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[7] For example, Italy, Romania, Bulgaria, and Hungary in Europe, and Argentina, Peru, and Brazil in Latin America to name a few are partially free in terms of freedom of the press. See http://www.knightfoundation.org/media/uploads/article_images/map-of-press-freedom-w-icon.jpg; <http://www.freedomhouse.org/reports>. It should be noted, however, that scholars of democratic transition and consolidation such as Larry Diamond, Mark Plattner, and Zeric Kay Smith point out some flaws in Mali’s democracy. See Larry Jay Diamond and Mark M. Plattner, “Francophone Africa in Flux”, *Journal of Democracy* Volume 12, Number 3 July 2001, pp. 35-36 and Zeric Kay Smith “Mali’s Decade of Democracy”, *Journal of Democracy* Volume 12, Number 3 July 2001, pp. 73-79.

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KENYA'S OIL PIPELINE AND TERRORISM

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The threat of Al-Shabaab and Al-Qaeda terrorist attacks on the critical infrastructure (oil pipeline) in Kenya has brought to the attention the strategic issue of the energy sector security, highlighting the potential vulnerabilities of this sector. Critical Infrastructure Protection (CIP) should be a key component of the national security especially after the Kenya Defence Forces' (KDF) incursion into Somalia. The merger of Al-Shabaab and Al-Qaeda terrorist groups and the accelerated grenades attack against Kenya in retaliation has become the centre of the debate on terrorism and internal security of the Kenya. The energy resources are strategic assets from the security, political and economic point of view. Kenya as an oil transit country is considered of primary strategic importance at international level. International terrorism has always looked with interest at the oil resource in order to meet its political and economic targets. We argue that Kenya's oil pipelines are vulnerable to Al-Shabaab and Al-Qaeda terrorist attack. In summary, the article looks at the concept of terrorism within the framework of critical infrastructure protection, the dangers of attacks on oil pipelines, Kenya's government preparedness and recommendations.

Key words: terrorism, critical infrastructure protection, vulnerability, protection.

1. INTRODUCTION

Terrorism worldwide is changing with the innovations in information communication technology (ICT). As a result, terrorist activities have evolved into a remodeled guerilla warfare, which has led the international, regional and national security apparatus to switch from conventional war tactics to localized counter-terrorism operations [1]. Terrorism has become a core component of the global geo-economic feature with respect to the energy sector because there is a linkage between scaled up terrorist

activities and energy generation [2].

The world population is growing at an alarming rate compared to the scarce resources. According to the United Nations University 2020 Global Energy Scenarios, the world has entered the age of resource-driven conflicts and the terrorist activity region-wide and the oil price growth are interrelated. Therefore, the objective of terrorist and extremist groups is no longer to overthrow central government and gain civil rights which were denied to their social, ethnic or religious group, but to establish and retain control over resources [3].

2. METHODOLOGY

The research employed quantitative and qualitative research methods. Because of the nature of the research topic, the research was formed through the analysis of secondary data and in this respect, extensive library research was done, where journals, internet, newspapers, books, and reports were consulted and studied. According to Bryman [4] secondary analysis is analysis of data by researchers who will probably not have been involved in the collection of data and, in addition, is concerned with analyzing already collected data within another study [5]. Secondary analysis allows for the examination of existing data yet can produce new and more detailed information, including the emergence of conclusions that differ to those in the original report [6]. The advantages of secondary analysis are that it provides high quality data [7], quick and easy access to materials as documentary research is largely free of the restrictions and difficulties faced in primary data research, the researchers do not encounter rejection, non-response, bias, or any other respondent-based problems [8]. People in the oil transport business were interviewed and provided primary data. A total of one hundred and seventeen (117) people were interviewed.

3. TERRORISM

Terrorism is a subfield of peace and Conflict Studies that analyses the interactions between states and other actors in their engagement with each other over legitimacy [9]. It is one of the most disputed terms and has no comprehensive definition [10]. Terrorism refers to

the deliberate killing of civilians, or to the doing of extensive damage to their property, with the intention of spreading fear through a population and communicating a political message to a third party, usually a government[11].

A terrorist is someone who opposes the established order either at national level or internationally. Even if engaged in a restrained military campaign against an un-democratic, racist or repressive regime, these individuals are still 'terrorists', and the government forces that oppose them 'counter-terrorists' [12].

The French Republic coined the term 'terror' as a measure to counter-revolutionaries against the weak government in 1795 and as a policy to protect itself [13]. The Bolsheviks used it to legitimize their actions against enemies of the state [14]. According to Jenkins [15] 'One man's terrorist is another man's freedom fighter', is often used to highlight the problem of implying a moral judgment when classifying the term 'terrorism'. If one identifies with the victim of the attack, then it is considered terrorism, but if one can identify with the perpetrator he or she is seen as a liberator. This elusiveness reflects the fact that the meaning of the term terrorism remains contested. It can be used in relation to violence by states against their subjects, sometimes referred to as 'enforcement terrorism' or 'terrorism from above' [16]. It can be used more broadly to describe violent actions in a civil war or other conflict. It can also describe isolated acts of violence separate from a situation of war, intended to cause terror rather than contribute to a broader conflict. By extension, this type of terrorism can refer to acts of violence carried out internationally,

in a third country apart from the location of its political cause [17].

“Terrorism means premeditated, politically motivated violence perpetrated against non-combatant targets by sub-national groups or clandestine agents, usually intended to influence an audience.” The definitions propose the motive of *“furtherance of political or social objectives”*. Such motives include religious, cultural, economic or psychological factors. Increasingly important, however, is the question of targets [18].

In traditional discussions about terrorism, targets are usually governments, political figures, objects of economic or social significance, or random civilians. But the motives and targets can include environmental and ecological resources such as water and built water systems. The social and cultural value and importance of oil pipeline systems also make them attractive targets. By calling attention to the inability of governments to protect vital symbols of civilization, terrorists can raise doubts about controlling authorities [19]. *“The relatively high efficiency of terrorism derives from its symbolic nature. If the terrorist comprehends that he is seeking a demonstration effect, he will attack targets with a maximum symbolic value.”* There are few natural resources with more symbolic power than water and oil [20].

The United Nations General Assembly’s Declaration on Measures to Eliminate International Terrorism, set out in its resolution 49/60 that terrorism includes *“criminal acts intended or calculated to provoke a state of terror in the general public, a group of persons or particular persons for political purposes”* and that such acts *“are in any circumstances*

unjustifiable, whatever the considerations of a political, philosophical, ideological, racial, ethnic, religious or other nature that may be invoked to justify them” [21].

4. VULNERABILITY OF KENYA’S CRITICAL INFRASTRUCTURE (OIL PIPELINE) TO AL SHABAAB ATTACKS

Al Shabaab employs extremist intimidation and terror tactics designed to instill fear in the population. Its so-called religious police mete out severe punishments, including floggings, amputations, stoning, and beheadings, for violations of its strict interpretation of Islamic law [22]. Al Shabaab has conducted kidnappings, shootings, and targeted political assassinations, not only of TFG officials but also journalists, civil society activists, and aid workers.

Al Shabaab’s use of improvised explosive devices (IEDs) and suicide bombers is a new dimension in the context of Somali conflict, tactics of urban warfare that have been successfully used by terrorists in Iraq and elsewhere. U.N. experts suggest that the IEDs used by Al Shabaab have become increasingly sophisticated, as have the tactics for their use, and the planning and execution of the suicide bombings of AMISOM targets indicate a level of expertise reminiscent of AQ operations [23]. In 2007, Al Shabaab claimed responsibility for at least five successful suicide bombings [24]. In 2008, Somalia ranked fourth globally, behind Iraq, Pakistan, and Afghanistan, in the number of fatalities incurred by terrorist attacks

[25]. Among the attacks attributed to Al Shabaab was the coordinated suicide bombing of five targets, including the U.N. Development Program (UNDP), in Somaliland and Puntland in 2008. The above cited incidences affirm the vulnerability of critical infrastructure (oil pipeline) in Kenya to Al Shabaab attack.

4.1. Oil Pipelines and Terrorism

Pipelines are the safest and fastest form of energy transportation, when compared to other modes of transportation such as rail and highway. However, it is more vulnerable to terrorists attacks [26]. Prevention methods are superior to detection and should always be noted that any 'detection' means a 'prevention' methods has failed [27]. Oil pipeline Companies should have 'management systems' which allow threats within the system to be identified, and mitigated [28]. Pipelines can be a target for attack by terrorists [29]. The terrorists prefer hard targets like security forces, high ranking government officials, diplomats and only turn to soft targets like transportation, infrastructure, hospitality, leisure and entertainment as a last resort [30].

Pipelines are 'high value' targets, and unfortunately they are difficult to protect, and are soft targets. They extend over long distances, and their location can be posted in company websites [31]. A typical attack may involve a cell of terrorists and pipelines may not be the prime target for terrorists, as they may not produce the publicity the terrorists desire like high number of death, casualties and extensive media coverage. Nevertheless, terrorism is on the increase in Kenya, and pipeline systems might be prime targets. The government should empower and partner with the private security firms to protect pipelines infrastructure [32].

4.2. Precedence of Oil Pipelines Terrorist Attacks

There have been attack and attempts on Oil pipelines by terrorists. For several years the Shell Company in Nigeria have been dealing with 'hot tapping' (drilling into a pressurized pipeline) and 'bunkering' or illegally obtaining fuel from pipelines [33]. Colombia's Caño limón oil pipeline has been attacked several times by the National Liberation Army since 1986, while in 2003 Iraq's main oil pipeline from the Kirkuk oilfields in the north to Turkey's Mediterranean port of Ceyhun was attacked [34] and between 2003 and 2007 there were 449 reported attacks against Iraqi oil infrastructure targets. In 2007 there were also attacks on Mexican pipelines by the Popular Liberation Army [35].

In 2007, a terrorist plot to destroy fuel pipelines at John F Kennedy airport was foiled by the Federal Bureau of Investigations [36]. Other potential attacks were uncovered and disrupted in the planning stage, including a surveillance of oil storage facilities in Australia and the U.S. in 2005 and 2006, respectively [37], the narrowly averted double vehicle bomb attack on the world's largest petroleum facility Abqaiq in Saudi Arabia in February 2006 [38], a threat to Ras Tanura in Saudi Arabia and Bahraini refineries in October 2006 [39] and the unsuccessful attack on a Yemeni oil refinery in September 2006 [40]. It seems likely that a number of other such threats have been disrupted but not publicized for security reasons.

4.3. The Risk of Oil Supply Interruption due to a Terrorist attack on Oil Pipelines

The possibility of attacks on oil installations, pipelines, offshore

installations and tankers are an attractive target for the disaffected [41]. There was a probable risk of terrorist attacks on oil facilities in the Middle East as part of “a move from symbolic targets to economic targets” [42]. Although there is increased awareness of the risks of terrorist attacks, the critical infrastructure management needs to increase resources to address this risk [43]. However, security experts opine that the risk of a successful terrorist attack is high, especially for energy facilities located in isolated locations [44].

This view is corroborated by the postings on jihad websites and the escalation of the rhetoric regarding the need to attack energy facilities is reflected in fatwas. For example, in June 2004 Shaykh Abdullah bin Nasser al-Rashid issued a fatwa entitled “The Laws of Targeting Petroleum-Related Interests and a Review of the Laws Pertaining to the Economic Jihad” [45]. Also published in 2006 was a “Decree on Targeting Oil Installations”, which gave comprehensive religious and political arguments in favor of attacks on energy facilities [46]. In 2007, an article entitled “Bin Laden and the Oil Weapon” was published, calling for attacks worldwide on oil facilities supplying the United States of America [47].

5. KENYA'S GOVERNMENT SECURITY AGENCIES & THE PRIVATE SECURITY FIRMS

The transportation of oil from Mombasa to Nairobi is mostly done through pipelines. The pipelines are built on the land surface and therefore are highly visible, or in the subsoil but also in this case are easily detectable [48]. At times the sub-stations along the oil pipeline are usually protected by a few guards from private security firms and sometimes left unprotected

[49]. Because some of these sub-stations are located in remote areas, the vulnerability to terrorist attack is increased [50].

Though Kenya pipeline Company, a major energy facility, have elaborate security programs in partnership with private security firms, in most cases private security guards are unlikely to be able to repel a determined attack by well-armed terrorists. In Kenya, private security guards are not allowed to carry guns and some companies have firm “no weapons” policies at all their locations. In reality, the private security guards focus on industrial safety, accident prevention and mitigation, ensuring that only authorized personnel have access to critical facilities, and preventing pilferage or theft of products [51]. Consequently, it is not surprising that in most of the major energy companies the heads of security report directly to the board with several levels of management between them and the board which affirms that security is a key priority for senior management [52].

In Kenya security against external and internal terrorist threats is provided by Kenya Defence Forces (KDF), National Intelligence Service (NIS) and the National Police Service (NPS) personnel [53] but in most cases private security firms are responsible for security outside the Critical Infrastructure Protection (CIP) facility perimeter and usually control both vehicle and personnel access at the gates. Typically, they also work closely with the nation's intelligence professionals to identify and defeat threats before they can approach the perimeter [54]. In principle, the private security firms at the perimeter should have the personnel, weaponry, and training to repel an attack by a determined and well-armed group of terrorists

using car or truck bombs, automatic weapons, and high explosives. In practice, however, experience to date indicates that the private security firms are seldom up to the task [55].

Even in cases where it is the armed government security personnel manning these Critical Infrastructure Protection (CIP) the armed government forces may not provide adequate security because the Kenya government have not yet designated a single ministry that has both the responsibility for security at energy facilities and the authority needed to implement effective security measures [56]. Second, “*stove-piping*” and competition between ministries inhibit cooperation and information sharing between all of the parties involved in security issues. Third, the authority to make decisions regarding a response to an attack is usually restricted to relatively high-ranking officers rather than delegated to the junior or non-commissioned officers who would bear the brunt of an attack [57]. As a result, no one can or will make a decision in real time to counter an attack, effectively paralyzing the defence and finally, prevailing attitudes like “it can’t happen here”, or that “if it does, it is God’s will and nothing can be done” need to be overcome [58].

It is prudent to note that the security status at many energy facilities is unsatisfactory and this may be attributed to the following factors: the security departments in companies are severely limited by budgetary constraints since they compete with other departments for the little resources as the companies may give a higher priority to other concerns and security professionals tend to rely upon familiar approaches and tried and true solutions, and they are often intrinsically distrustful of the new and the unfamiliar ones. This can lead to the

unfortunate situation of “*doing the same thing, over and over again, but expecting different results*” [59].

6. DETERRENT OF AL-SHABAAB & AL-QAEDA TERRORIST RECRUITMENT

The Al-Shabaab and Al-Qaeda terrorist threat in Kenya today consists of tiny conspiracies and on-off attacks [60]. The continued trust and cooperation of most Kenyans, tips to police from the family members and close acquaintances of those heading toward radicalization, alert citizens, and focused intelligence-collection efforts will remain essential components of the thus-far successful containment of domestic Al-Shabaab and Al-Qaeda terrorism [61].

Traditional law enforcement, in which authorities attempt to identify and apprehend a perpetrator after a crime has been committed, is inadequate to deal with terrorists who are determined to cause many deaths and great destruction and who may not care whether they themselves survive [62]. Apart from traditional law enforcement, security intelligence collection, and community policing, public reaction is an essential component of internal security. Public safety demands a more proactive and preventive approach intervention before an attack occurs like the grenade attack in Machakos country bus [63].

With the increase of Kenyan youth’s un-employment, their recruitment and radicalization into Al-Shabaab and Al-Qaeda terrorism remain a reality. Therefore, the international and domestic intelligence collection must remain a top priority. Under appropriate controls, intelligence operations can disrupt terrorist recruiting, uncover terrorist plots, and discourage those who would turn

to violence [64]. Consequently, by preventing dramatic terrorist actions that inevitably create fear and alarm, intelligence operations can also prevent overreactions by the general public, allay unwarranted suspicions, and thereby protect vulnerable minorities (in this case, the Kenyan Muslim community) against official discrimination and even individual acts of revenge [65].

Meanwhile, expanded efforts must be made through community policing and other means to work with Kenyan youths. These efforts must entail working with the youths actively and consistently to address issues of youth empowerment, fears of victimization, crime, the suspicions of authorities and other concerns [66].

Peers, friends, parents and relatives are often more likely than the authorities to know when someone is turning against legitimate authority, anti-establishment and heading toward radicalization. On such occasion peers, friends, parents and relatives should intervene [67]. But in most cases the mistrust between the public and the police may hinder the citizens from notifying the police when a youth is being radicalized. Therefore, maintaining good relationships between the police with all members of the public without stigmatizing any group or privileging special interests is of paramount importance [68]. Un-warranted alarm, exaggerated portrayals of the terrorist threat, unrealistic expectations of a risk-free society, and unreasonable demands for absolute protection will only encourage terrorists' ambitions to make Kenya fibrillate in fear and bankrupt itself with security. As long as Kenya's psychological vulnerability is on display, Al-Shabaab and Al-Qaeda terrorist will find inspiration, and more recruitment and terrorism will occur [69].

7. RECOMMENDATIONS

A. The security agencies in Kenya should enhance partnerships with the private security firms to improve security in energy sector and facilities in Kenya. Reducing Al-Shabaab and Al-Qaeda terrorist risks at these facilities constitute an immediate objective of national intelligence services and law-enforcement agencies.

B. According to Felter et al. [70], unemployed youths are easy to recruit and radicalize by extremist groups like Al-Shabab and therefore, the Kenyan government should empower them economically.

C. The anti-terrorist security interests of Kenya overlap with its economic interests. We believe that boosting business and restoring large-scale economic ties among East Africa Community in the area of energy resources and energy supply, forces us to employ a more pragmatic and legally considered approach to address terrorist threats, as part of a transport security strategy.

D. Private and public security forces should take into account regional specifics when addressing the issues of critical infrastructure protection from sabotage from Al-Shabaab and Al-Qaeda terrorist attacks.

E. The most fundamental action that can be taken to protect oil pipe line systems is to limit or deny physical access to vulnerable points. Sometimes this may be as easy as locking gates or buildings, or reducing public access to sensitive locations. The government should station guards at "critical sites" [71]

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DEFENSE RESOURCES MANAGEMENT USING GAME THEORY

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Game theory provides a number of analytical tools designed to assist in developing a more comprehensive understanding of phenomena emerging when decision-makers interact. A game describes the strategic interactions between players who act guided by their interests and with the consciousness that their actions affect each other. The basic entity in all game theory models is the player. A player may be understood as an individual, group of individuals or any kind of organization, even countries or alliances facing decisions-making challenges and opportunities. In this respect, the concept providing the dimensions and variables informing on the planning “game” elements required for an optimal defense resource allocation is that of ‘capabilities’. The model developed in this paper is focused on allocations of the available defense resources over the assumed capabilities in order to achieve the best response to national security. I consider as a game the competition between strategic decision-makers involved in defense resource management and the threats to the national security.

Key words: *defense resources, game theory, defense capabilities, optimal resource allocation, effectiveness, efficiency.*

1. INTRODUCTION

Warfare is a costly economic activity that combines inputs as varied as those employed in any ordinary economic activity.[1]

Game theory provides a number of analytical tools which are designed to assist in a more comprehensive understanding of phenomena occurring when decision-makers interact. A game describes the strategic interactions between players who act guided by their interests and with the consciousness that their actions affect each other. The basic entity in all game theory models is the player. A player may be understood as an individual, group of individuals or any kind of organization, even countries or alliances that need to make decisions.

In order to describe a theoretic game we need to specify four essential elements: players, actions, payoff and information. Rasmussen refers to these by the PAPI acronym [2].

To develop a model based on game theory capable to describe an optimal defense resource allocation, and identify the planning “game” elements, a thorough conceptual understanding of ‘defense capability’ is required.

The Australian Defense Force defines the ‘defense capability’ as “the power to achieve a desired operational effect in a nominated environment, within a specified time, and to sustain that effect for a designated period”[3]. This comprises the combined effect of multiple inputs such as: personnel, organization, training, major systems,

supplies. The Department of Defense of US defines as a military capability “the ability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks” [CJCSI/M 3010 series]. It includes four major components: force structure, modernization, readiness, and sustainability.

Both definitions are built around the notion of ‘effect’. This leads us to the question “*what decisions can be taken to maximize the general security effect, having designed certain capabilities to encounter certain threats, under the pressure of limited available resources (such as the allocated defense budget)?*”

The model developed in this paper is focused on allocations of the available defense resources over the assumed capabilities in order to achieve the best response to the national security. I consider as a game the competition between strategic decision-makers involved in defense resource management and the threats to the national security.

2. MILITARY EXPENDITURES IN NATO COUNTRIES

A military force is “only as effective today as current capabilities allow. And, in future, it will only be as effective as investments in new capabilities made today will allow” [4].

In the opening of the NATO Parliamentary Assembly annual session, Dubrovnik, 11 October 2013, the president, Hugh Bayley stated that “Without strong capabilities, our ambition to defend our interests and the values we stand for will be unfulfilled, and our response to crises will be narrow, limited and

possibly ineffective”.

Against a background of economic austerity, delivering NATO Forces 2020 will only be possible if the Allies spend smarter. This means spending more efficiently, including more multinational cooperation, and spending more effectively, that is making sure that their militaries retain their ability to operate together as they have done on NATO-led missions. [5]

2.1. An analysis of defense expenditure structure

Military expenditures are made in order to assure inputs for national defense. These comprise in acquiring manpower, fuel, food, buildings, weapons, and so on. The relationship between these inputs and defense capabilities is a very important and yet a very difficult area to study for a single country or to compare across countries.

NATO publishes an annual compendium of financial, personnel and economic data for all member countries. Since 1963, this report has formed a consistent basis of comparison of the defense effort of Alliance members based on a common definition of defense expenditure.[6]

Analyzing the 13 April 2012 report related to defense financial and economical data among allied there are four main categories in which military expenditures are structured:

- Personnel expenditures;
- Equipment expenditures;
- Infrastructure expenditures;
- Operations and Maintenance expenditures.

Table no. 1 Distribution of total defense expenditure by category

Category of expenditure	The average per countries (%)		Maximum average percentage (%)	Minimum percentage (%)
	1990-2011	2011		
Personnel*	57.14	59.84	75.4 Belgium	31.55 Estonia
Equipment**	15.38	13.54	27.47 Turkey	6.72 Belgium
Infrastructure***	3.62	3.25	13.72 Estonia	1.04 Portugal
Other expenditures ****	23.86	23.37	39.73 Estonia	11.47 Albania

* Personnel expenditure include military and civilian personnel expenditures and pensions;

** Equipment expenditures include major equipment expenditures and R&D devoted to major expenditures;

*** Infrastructure expenditures include NATO common expenditures and national military constructions;

**** Other expenditures include operations and maintenance expenditures, other R&D expenditures and expenditures not allocated among above-mentioned categories.

The personnel expenditure between 1990-2011 has increased reaching in 2011 about 60% percent from total defense expenditures.

The investments in major equipments have fell by nearly 2%, in 2011, from the average along the time.

The infrastructure expenditures were maintained at around 3.62%, as average over the time. The largest percentage of total defense expenditure was allocated by Estonia for infrastructure, over 13% every year, starting 2004 when it joined NATO.

In conclusion we observe that the largest cost for defense, among NATO countries, is given by personnel expenditures and the relationship between equipment expenditures and the cost for operation and maintenance is about 1:1.6.

2.2. The defense effectiveness function

The main objective which is

taken into consideration by strategic decision-makers when planning to develop a defense capability is to achieve the best response against possible and probable threats to national security. The evaluation of effectiveness of a particular capability is hard to do. We cannot evaluate its performance only based on how this acts individually. To have a complete evaluation we need to see a military capability in a more complex environment, integrated in the defense capability as a whole and in connection with other capabilities.

To evaluate the military power of a country does not simply mean looking at its defense capabilities, and their performance. This has to be viewed in a global context, geographical, political, demographical, and to identify the available resources to support the defense system.

A broad analysis of military

power is made by Global Firepower [7], which has come with a ranking system using over 40 factors to determine each nation's Power Index ("PwrIndx") score. Along the specific military capability (land system, total aircrafts, and total naval strengths) they also count the financial factors, the resources indicators, the logistic infrastructure, even the geographical characteristics such as square land area, coastline, shared border, waterways. The lower

"Power Index" ranks show countries with higher military power.

In order to see how military spending is reflected in the effectiveness of a country's military power we transformed the IndexPower into an effectiveness parameter, on a scale between 0 and 100; a lower IndexPower shows a higher effectiveness parameter. The transformation formula is as follows:

$$Effectiveness = \frac{\max(\text{Indexpower}) - \text{IndexPower}}{\max(\text{Indexpower}) - \min(\text{IndexPower})} \quad (1)$$

Table no. 2 The relationship between the effectiveness parameter and defense expenditure in NATO countries

NATO countries	Defense expenditure 2011 (billion dollars)*	Power Index*	Effectiveness
Croatia	0.97	1.7413	1.41
Romania	2.38	1.6555	7.07
Portugal	3.61	1.7627	0.00
Denmark	4.52	1.616	9.68
Belgium	5.54	1.7266	2.38
Greece	6.43	1.6527	7.26
Poland	8.91	0.9518	53.52
Spain	13.98	1.1847	38.15
Canada	23.69	0.8638	59.33
Italy	30.22	0.6838	71.21
France	53.44	0.6163	75.66
Germany	48.14	0.6491	73.50
United Kingdom	63.57	0.5185	82.11
United States	731.88	0.2475	100.00

* Source: <http://www.globalfirepower.com/> - Global FirePower;

** Source: <http://www.nato.int/> Current price and exchange rate.

The correlation coefficient between the effectiveness parameter and defense budget (Table 2) is 0.46, which means that we have a moderate relationship between these variables, and also shows there are others variables which influence the

effectiveness parameter of military power.

In this research it is not important the absolute values of parameters, we need only to see the path in which they influence each other. If we denote E the relative effectiveness parameter

of military power, calculated with the formula (1), and B_d the budget allocated to the Ministry of Defense, we can assume for the function $E=E(B_d)$ the following properties:

- It is an increasing function: $dE/dB_d > 0$
- It is strictly a concave function on the interval $(0, \infty)$:

$$E(B_{d1}\theta + B_{d2}(1-\theta)) > \theta E(B_{d1}) + (1-\theta)E(B_{d2});$$

for any $B_{d1} \neq B_{d2}$, and $\theta \in (0,1)$;

- It is upward limited: there is an effectiveness limit above which the defense power cannot increase regardless the allocated budget.

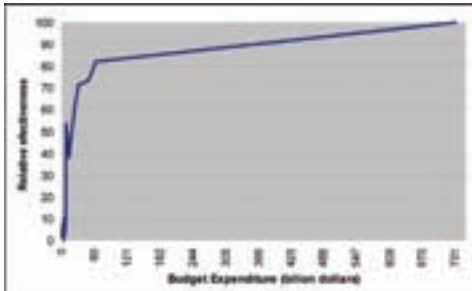


Figure 1. The path of Effectiveness-Defense Expenditure function

One type of function which can meet the above conditions is the logistic function which can take the following form:

$$E(B_d) = \frac{E_{max}}{1 + Ae^{-kB_d}} \quad (2)$$

where A and k are parameters which determine the path of function.

3. GAME THEORY FUNDAMENTALS

Game theory is an area of mathematical study with direct applications in economics, sociology, and psychology. The theory was first formulated by John Von Neumann, and later was developed by John Nash, A. W.

Tucker, and others.

Game theory consists of a set of analytical tools designed to help us understand the phenomena that we observe when decision-makers interact.

3.1. Definitions and game elements

A game describes a strategic interaction between players who have to choose between a series of actions respecting a series of rules (constraints on the actions in order to maximize their interest). A solution is a methodical description of the outcomes that may come out in a family of games.

A strategic game is a model of a situation in which each player chooses his plan of action, and all players' decisions are made simultaneously (that is, when choosing a plan of action each player is not informed of the plan of action chosen by any other player). By contrast, the model of an extensive game specifies the possible orders of events; each player can consider his plan of action not only at the beginning of the game but also whenever he has to make a decision. [8]

The basic entity in all game theoretic models is the player. A player may be interpreted as an individual or as a group of individuals making a decision. Once we define the set of players, we may distinguish between two types of models: those in which the sets of possible actions of individual players are primitive and those in which the sets of possible joint actions of groups of players are primitive. Sometimes models of the first type are referred to as "noncooperative", while those of the second type are referred to as "cooperative" (though these terms do not express that well the differences between the models).

The central concept in non-cooperative game with two or more players is the Nash equilibrium. This defines a solution concept in which the rational

players having chosen a strategy cannot gain anything by changing unilaterally their own strategy.

The Nash equilibrium is used to analyze the outcome in strategic decision-makers interaction.

3.2. Contest success function

In game theory the contests are games in which each a player exerts effort in order to increase his or her probability of winning a prize. The contest is a very useful tool to study phenomena in economics, warfare and other social domains.

The main components of a contest are the players' probabilities to win or lose given their level of effort. These probabilities described as functions of efforts are called contest success functions.[9] Regarding their use, an analogy with production functions from production theory can be made. But there are two important differences between production functions and contest success function. Related to outputs, the production functions provide deterministic results as to contest functions probabilities. Looking at the inputs, contest functions take into consideration the efforts of the participating players to determine the probability of winning. These efforts are combined adversarially, "so that a player's probability of winning is increasing in her or his effort but is decreasing in the efforts of all the adversaries" [10].

Contest success functions, which show how probabilities of winning depend on resources devoted to a conflict, have been widely used in the literature addressing appropriative activities (economics), international and civil wars (political science), and group conflict and selection (evolutionary biology). Two well-known forms of

contest success functions predict contest outcomes from the difference between the resources of each side and from the ratio of resources.

Consider two adversaries or contestants, labeled 1 and 2. Denote their choice of efforts as x_1 and x_2 . We suppose that efforts are themselves outputs of production functions of different inputs. These production functions can be the same for the two adversaries or they can be different. Associated with them are cost functions $c_1(x_1)$ and $c_2(x_2)$. Since we are solely concerned with how pairs of efforts translate into probabilities of wins and losses and not how efforts might be chosen, we will keep these cost and production functions in the background. For any given combination of efforts, each rival has a probability of winning and a probability of losing. Denote the probability of party $i=1$ winning as $p_1(x_1, x_2)$ and the probability of party $i=2$ winning as $p_2(x_1, x_2)$.

The properties of those probabilities need to be as follows:

- $0 \leq p_i(x_1, x_2) \leq 1$ for $i=1 \dots 2$;
- $p_2(x_1, x_2) = 1 - p_1(x_1, x_2)$.

The general form of these probabilities that has been widely examined is as follows:

$$p_i(x_1, x_2) = \begin{cases} \frac{f(x_i)}{f(x_1) + f(x_2)} & \text{if } \sum_{i=1}^2 f(x_i) > 0 \\ \frac{1}{2} & \text{otherwise.} \end{cases} \quad (3)$$

There are two main forms which are commonly used for the function f . One of them takes the exponential form as $f(x) = x^\lambda$, where $\lambda > 0$ (and often, for technical reasons of existence of pure-strategy Nash equilibrium, $\lambda \leq 1$). This form provides probabilities of winning

which depend on the ratio between the efforts of two parties, and looks as follows:

$$p_1(x_1, x_2) = \frac{x_1^\lambda}{x_1^\lambda + x_2^\lambda} = \frac{1}{1 + (x_1/x_2)^{-\lambda}} \quad (4)$$

$$p_2(x_1, x_2) = \frac{x_2^\lambda}{x_1^\lambda + x_2^\lambda} = \frac{1}{1 + (x_2/x_1)^{-\lambda}} \quad (5)$$

Another well-know form of function f uses the “logit” specification as $f(x) = e^{\lambda x}$, where $\lambda > 0$, and the probabilities for winning become as follows:

$$p_1(x_1, x_2) = \frac{e^{\lambda x_1}}{e^{\lambda x_1} + e^{\lambda x_2}} = \frac{1}{1 + e^{\lambda(x_1 - x_2)}} \quad (6)$$

$$p_2(x_1, x_2) = \frac{e^{\lambda x_2}}{e^{\lambda x_1} + e^{\lambda x_2}} = \frac{1}{1 + e^{\lambda(x_2 - x_1)}} \quad (7)$$

4. MODELS TO PLAN DEFENSE RESOURCES

4.1. The main elements of the models

In the following game models we have defined, on the one hand, the main player under the fictitious name ‘defender’, who tries to defend as much as possible a series of valuable targets. On the other hand we have an ‘attacker’ who tries to attack the targets and determine as much losses as possible.

The notion of ‘attacker’ does not define a specific country or terrorist organization that interacts with national security; it takes into consideration the effect of its action as a ‘threat’ against national security. This threat is evaluated in terms of probability of occurrence and the level of impact over the target on which is directed. I assume that the attackers (as well as their generated threats) are neither static, or fixed, nor immutable.

When I refer to a target I mean a complex system which can be conceived to have economic value, human value, and/or symbolic value,

and could generate an interest for a potential aggressor. As an example, a target such as The U.S Statue of Liberty has substantial symbolic value, and no human value. I do not want to insist with more details what a target comprises and how this can be evaluated. For my purpose I take into consideration a theoretical target which has a different value from a defender’s and attacker’s perspective.

The first and foremost approach to modeling a player’s interest is utility theory. This theoretical methodology deals with measuring the degree of preference across a set of available options. The purpose of this paper is not to evaluate the targets, but we need to set the theoretical values for each target, measured in money. Further research will explore in details the ways of evaluation.

“The functionality or successful operation of each target depends on the relative investments in defense versus attack. The defender seeks functionality of the system while the attacker seeks non-functionality. The approach allows analyzing the phenomenon from both the defender and attacker’s point of view.”[11]

The assumptions concerning the defender and attacker are that they both think at strategic level and are capable to adapt optimally their own actions to the opponent’s actions by spending defensive/offensive resources for each target.

4.2. Resources allocation over defense capabilities

The main purpose in defense resource allocation is to assure such level of readiness of existing capabilities in order to respond optimally to a set of threats against national security.

We assume that the defender has developed a series of capabilities, noted $C_i, i = 1 \dots n$ to defend, independently, a specific ‘target’ with a specific value, against the attacker. For this step of research, we assume that the readiness level of a capability does not have any influence over the level of readiness of

other capabilities.

Each target $T_i, i = 1 \dots n$ has an evaluation from both the defender's and attacker's point of view. The defender evaluates the target T_i with the total value ' v_i ' (economic, human and symbolic). From the attacker's perspective, the same target has different evaluations. We denote V_i the value of the target T_i from the attacker's perspective.

In order to defend the target T_i , the defender needs to spend the resources x_i for the capability C_i to assure a certain level of readiness. The total cost of allocated resources is constrained by the defense budget B_d .

$$\sum_{i=1}^n x_i = B_d \quad (8)$$

In the same way we consider that the attacker exerts a resource effort y_i to attack each target T_i . The total costs of allocated resources are also constrained by the budget of the attacker B_a .

$$\sum_{i=1}^n y_i = B_a \quad (9)$$

The defender's aim is to save as much as possible from the total value of the defended targets, through resource allocations for each developed capability.

The total value expected to be saved by defender if a confrontation with the attacker occurs is:

$$S(x_i, y_i, v_i, V_i^j) = \sum_i p_i \cdot v_i \quad (10)$$

where $p_i = \frac{x_i^\lambda}{x_i^\lambda + y_i^\lambda}$ is the

probability to have success in defending the target T_i .

The objective function for the defender is to maximize the total value expected to be saved:

$$\max_{x_i} S(x_i, y_i, v_i, V_i^j) \quad (11)$$

If the attacker chooses to launch an attack against the defender, the total value expected to be caused is:

$$L(x_i, y_i, v_i, V_i^j) = \sum_i q_i \cdot V_i \quad (12)$$

where $q_i = \frac{y_i}{x_i + y_i} = 1 - p_i$ is the

probability of the attacker to have success on the target T_i .

The aim of the attacker is to cause as much damages (lost value) as possible to the defender (targets).

$$\max_{y_i} L(x_i, y_i, v_i, V_i^j) \quad (13)$$

4.3. Multi-year expenditures. The investment plan

When defense planners decide to invest in a new capability in order to improve the effectiveness of national defense, it is compulsory to be also aware of how much resource remains to operate the existing capabilities.

In this model the defender has not only to analyze the status of the current security environment every year but also to anticipate how this evolves. In this respect, the defender has to decide how much resource has to be allocated to assure the optimum level of readiness of current capabilities and how much is needed to be invested in order to have a better defense in the future.

Let us denote $x_0(t)$ the expenditures allocated by defender to operate the existing capabilities, and $x_1(t)$ the expenditure invested in developing the new capabilities, where $t = 1 \dots n$, a specific fiscal year.

Without missing the general aims of this paper we assume that the defense budget is spent only to develop new capabilities and to operate the existing ones.

The budget constraint can be

written as follows:

$$x_o(t) + x_i(t) = B_d(t) \text{ for each } t = 1; \dots; n \text{ (14)}$$

We assume that the effectiveness of the defense capability as a whole is given by the total value of the inventory at each time I(t):

$$I_d(t) = I_d(0) + \sum_{r=1}^n x_i(t) \text{ (15)}$$

Taking into consideration the function form (2) of the effectiveness we can write:

$$\lambda(t) = \frac{1}{1 + Ae^{-\frac{I_d(t)}{I_d(0)}}} \text{ (15)}$$

where $0 < \lambda < 1$ is the effectiveness of defense capability, and A parameter. In the same way we can analyze the attacker, at time t:

$$y_o(t) + y_i(t) = B_a(t) \text{ for each } t = 1; \dots; n \text{ (16)}$$

$$I_a(t) = I_a(0) + \sum_{r=1}^n y_i(t) \text{ (17)}$$

$$\varphi(t) = \frac{1}{1 + Ae^{-\frac{I_a(t)}{I_a(0)}}} \text{ (18)}$$

where:

- $y_o(t)$ and $y_i(t)$ is the expenditure invested by the attacker to operate the existing capabilities and to invest in new ones;
- $I_a(t) t=0 \dots n$ the total value of the capabilities inventory of the attacker;
- $\varphi(t)$ is the effectiveness level of the attacker's capabilities;

Both the defender and the attacker use long term analysis, check the probabilities of success if confrontations occur, and evaluate what the level of total saved (total damages) value will be if a confrontation occurs.

The probabilities of success at the t moment take the following forms:

$$p(x'_o, y'_o) = \frac{(x'_o)^{v'}}{(x'_o)^{v'} + (y'_o)^{v'}} \text{ for defender (19)}$$

$$q(x'_o, y'_o) = \frac{(y'_o)^{v''}}{(x'_o)^{v''} + (y'_o)^{v''}} \text{ for attacker (20)}$$

If we consider a target which is defended by the defender against the attacker and is evaluated with the v respectively V value by the defender, respectively attacker, then the value expected to be saved (to be damaged) at the t moment is as follows:

$$s(t) = p(x_o(t), y_o(t)) \cdot v \text{ (21)}$$

$$l(t) = q(x_o(t), y_o(t)) \cdot V \text{ (22)}$$

The total value expected to be saved (damaged) after "n" fiscal years can be expressed as follows:

$$S = \sum_{t=1}^n s(t) \text{ (23)}$$

$$L = \sum_{t=1}^n l(t) \text{ (24)}$$

The objective for the defender and the attacker is to maximize the total value expected to be saved (damaged) over a period of the time n:

$$\max_{x_o(t), x_i(t), y_o(t), y_i(t)} (S(x_o(t), x_i(t), y_o(t), y_i(t))) \text{ (25)}$$

$$\max_{x_o(t), x_i(t), y_o(t), y_i(t)} (L(x_o(t), x_i(t), y_o(t), y_i(t))) \text{ (26)}$$

5. NUMERICAL RESULTS

Let us imagine a virtual country, XLand (defender), in a security environment posing a series of threats from a virtual enemy, YLand (attacker). The Ministry of Defense has to develop a series of capabilities, with a limited

budget, in order to counter these threats.

In the process of capability based planning it was assumed that three types of capabilities are necessary: A - land defense, B- air defense, and C – maritime defense. Each of these capabilities is developed to defend, against the virtual enemy, three virtual independent targets (having human value, economic value and also symbolic value): T_1 - land territory, T_2 – airspace, T_3 – maritime territory.

It is assumed that both the defender and the attacker have different evaluations of the three targets as described in Table 3. Their actions (defending and attacking) against three targets are limited by the budget allocation: $B_d = \$300$ billion – the defender’s budget, $B_a = \$400$ billion – the attacker’s budget.

The defense planning specialists evaluate the cost- effectiveness of both their own and attacker’s capabilities

through the following parameters: $\lambda_d = 0.3$, and $\lambda_a = 0.1$

To estimate the probability of success both the attacker and defender use the different form of CFS.

Taking into account all of the above assumptions and evaluations, and with the help of Excel solver, it can be found out that the model rapidly converges to the Nash equilibrium, and there is a single optimal solution in resource allocations to defend/attack the targets for both defender and attacker (Table 4). This solution assures the “maximum saved value” – **4662 billion dollars** (from the defender’s perspective) and “the maximum lost value” – **2032 billion dollars** (from the attacker’s perspective), if a conflict between the defender and the attacker occurs. Any other allocation of resources will conduct to less output for both the defender and the attacker.

Table no. 3 Defender’s and attacker’s target evaluations

Capability	Targets	Defender’s target evaluation (billion dollars)	Attacker’s target evaluation (billion dollars)
A. Land Defense	T1. Land Territory	3000	2800
B. Airspace Defense	T2. Airspace	2000	2500
C. Maritime Defense	T3. Maritime Territory	1500	1700

Table no.4 Defender’s and attacker’s resource allocations

Capability	Targets	Defender’s target evaluation (billion dollars)	Attacker’s target evaluation (billion dollars)
A. Land Defense	T1. Land Territory	134	155
B. Airspace Defense	T2. Airspace	94	145
C. Maritime Defense	T3. Maritime Territory	72	100
TOTAL RESOURCE ALLOCATION		300	400

The second problem which is faced by the defender is how to choose the proportion between the operation expenditures and the investments in new capabilities in order to achieve a

best response to the threats generated by the attacker.

The main data on which the defender develops his plan is described in **Table 5**.

Table no.5 Plan details

Details	Defender	Attacker
Defense Budget (billion dollars)	300	400
The total value of existing inventory (billion dollars)	3000	3000
The total estimated value of the targets (billion dollars)	6500	7000

The period of time which is taken into consideration for analysis is 6 years. Every year the defender updates his capabilities inventory by investment expenditure in order to increase the effectiveness. The rest of the budget is spent to operate the existing capabilities.

This model for planning the defense expenditure reaches very

fast the equilibrium and provides a unique optimum solution for defense expenditure in every year. To solve the model Excel, and its feature solver, is used again. The results are given in the table below.

As we observe, the defender, in order to have an optimum response against the attacker's threats chooses to invest a part from the budget to improve the effectiveness of the capabilities, and increase the value of the inventory. For a 6 year period of analysis, the defender has to invest only in the first three years, with the main effort in the first fiscal year. The ratio between the expenditure on operation and investments, in the first fiscal year, is **1.60**. The analysis has to be made by the defender in order to adapt his strategy to any changes in the attacker's strategy.

Table no.6 Defense expenditures by FY

Fiscal Year	Operation expenditure	Investment expenditure	The value of current inventory	Effectiveness	Probability of success
2014	185	115	3114	0.51	0.47
2015	222	78	3190	0.52	0.47
2016	275	25	3212	0.52	0.46
2017	300	0	3212	0.52	0.46
2018	300	0	3212	0.52	0.46
2019	300	0	3212	0.52	0.46

6. CONCLUSIONS

These models, developed based on game theory, can become a powerful tool for defense planning makers who need to design the structure of resource allocation over the capabilities.

The major problem faced was in defining the elements of the games in such ways in which the equilibrium can be reached, and provide a solution to defense capability planners. In this respect, Rasmussen states that "*lack of a unique equilibrium is a major problem in game theory*" [2].

Even some parameters of the game are hard to be evaluated (the value of the

targets, the cost effectiveness parameters. In this respect, the models can provide a structure of resource allocation over available capabilities. Knowledge of the absolute values of the parameters does not necessarily need to be known. It is very useful if we have relative evaluations and if we could establish ratios between them within a certain tolerance limit.

Also, the results can show that it is not necessary to know how the attacker allocates resources over his capabilities. To take an optimum decision knowledge of the budget, of the nature of attacker's capabilities (in order to estimate the cost-effectiveness parameter) and threat

estimates (the value of the targets from the attacker's perspective) is enough.

If we choose the logistic form, with a proper parameter ($A=2.7$), for calculating the effectiveness parameter (considered in Chapter D), we can obtain results very close to the reality. The ratio between operational expenditure and investments is 1.6, the same as the average in NATO countries.

These simplified models can be the first step in a more complex analysis of defense capability planning based on resource allocation.

Interesting future research can include: sensitivity analysis and identification of the important parameters which have the most influence over resource allocation; how the cost-effectiveness parameter influences resource allocation, and the probability to win against an attacker. In this respect, the guiding research question could be: "What are the circumstances under which the planners decide to acquire a new capability instead to maintain an older one?"; developing a more complex model with multi-purpose capabilities in a security environment with more independent and/or dependent enemies; consider the enemies who act both strategically and non-strategically.

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SECURITY AND SECURITY RELATED RESEARCH WITHIN THE EUROPEAN UNION AND THE SLOVAK REPUBLIC

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The article presents current aspects of security and security related research. Due to current threats, it emphasizes new measures taken by EU member states and that are focused on science and security research. It underlines particular EU projects and the involvement of individual member states in these activities. The article refers to the position of the Slovak Republic (SR) in relation with EU countries and the reflection of some activities in the development programs within the Slovak Department of Defense.

Key words: *defense sources, strategy, transformation, defense, research, program, cooperation.*

1. INTRODUCTION

At the beginning of the 21st century more attention is paid to security in its full complexity, since the world society has been confronted with new threats of great impact (e.g. terrorist activities in New York 2001, Madrid 2004, London 2005). The current worldwide socio-economic and security environment is significantly affected by factors such as: threats (military, non-military or asymmetric), persistent economic crisis in the context of globalization, permanent terrorism hazard, failing states, instability in developing countries, rising vulnerability of society, etc.

The situation was promptly reflected in the updated key documents of global players from the political scene (The National Security Strategy of USA or Security Strategy of EU[1]).

In spite of the measures taken so far, attempts to enhance security in the world and on the “old continent” failed. This issue could be addressed by modern science through security research focused on the most urgent problems.

2. SECURITY IN EUROPEAN UNION PROJECTS

Security threats possess a multispectral character which will be highlighted hereinafter. Terror and violence in the world is one of the consequences / materialization of fight over limited resources, due to a growing population and significant climate changes in several parts of the world. Those resources are gradually running out and are being replaced just partially (e.g. oil based energy substituted by solar energy). Low-intensity wars waged by terrorists (to include suicide attacks), represent the fight of the weaker against the stronger, while the latter do everything to maintain their monopolies and economic exclusive access to resources.

Thus, another worldwide conflict is very improbable to commence in the near future, considering globalization itself as a factor of peace. When and if there are new technologies available for alleviating conflicts is not clear. The fact that security as a research topic is increasingly included in EU programs proves that security it is becoming a priority for the Union [2].

2.1. Security as a research topic in the Seventh Framework Program (FP7)

In response to the emerging threats the European Committee adopted in 2005 the European Counterterrorist Strategy and assembled the European Security Research and Advisory Board, which formulated the European Program of security research, focused on innovation and end-users' participation. The program requires several sciences to be involved, such as mathematics, physics, chemistry, biology, engineering and social sciences. The corresponding areas of research are information and communication technologies, navigation, signals processing, space systems, sensors, light and solid materials, chemical, biological and medical materials, biometrics, biotechnologies, etc.

The attention paid to security threats was confirmed through the activity conducted by a group of 27 European personalities that formulated a number of principles, as follows:

- threats do not respect national borders;
- globalization is a source of new threats;
- Europe must mobilize its technological potential;
- it requires synergy of many areas of research and development;
- it is necessary to respect the principles of a liberal and open society;
- security of citizens is first the responsibility of national governments.

Based on the aforementioned principles Security has been included as a separate topic (topic 10) in the 7th Framework Program. It is focused on the following seven fields of security:

- citizens' safety;
- infrastructure safety;
- intelligent monitoring and safety

of borders;

- restoring safety in crisis times;
- integration of security systems;
- security and society;
- coordination and structure of security research.

The financial allocations for the Security topic totaled only 1.4 billion € for the entire seven years period, which is just a fraction of the expenses of USA. Nevertheless those resources allowed calling 7 challenges and financing 236 projects so far, while there are discussions about other projects that will be handled in the next years [3].

3. THE PARTICIPATION OF SLOVAK RESEARCHERS ON SECURITY WITHIN THE 7TH FRAMEWORK PROGRAM

Slovakia (SR) has been participating in 17 projects so far and was the coordinating nation in one of them (**Table 1**). Within the 7th Framework Program participation, among the 28 EU countries, Slovakia is currently ranked the 18th/19th [4]. It is a better posture than the one that refers to the national financing of research and development, where it is ranked as the 24th. With one coordination obtained (private company Ardaco) Slovakia is, along with Luxemburg, Hungary, Malta and Romania, on the 18th – 21st position (**Figure 1**).

Regarding the overall 7th Framework Program financial allocations, the theme of Security for Slovakia is the third most successful one, although its budget belongs to the smallest program and the corresponding community of potential Slovak experts is quite small.

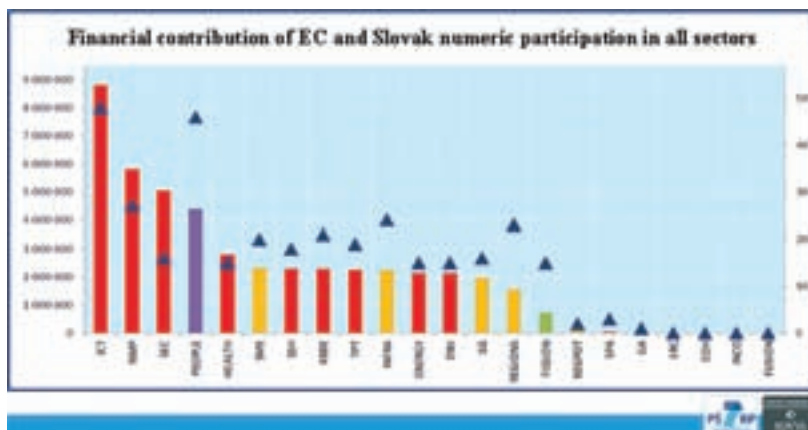


Figure 1. Security is financially third most successful theme of Slovakia in the 7th FR EU

Table no. 1 Projects with Slovak participation

Acronym	Name	Coordinator	Participants from SR
EU SEC II	Coordinating National Research Programs and Policies on Security at Major Events in Europe	IT	Ministry of Interior of SR
INDECT	Intelligent Information System Supporting Observation, Searching and Detection of Security of Citizen in Urban Environment	PL	Technical University Košice
SECRICOM	Seamless Communication for Crisis	UK	Geothermal Anywhere, s.r.o. Ardaco, a.s. IT Institute Slovak Academy of Sciences
SEREN	Security Research NCP Network, Phase 1	FR	APVV
SEREN 2	Security Research NCP Network, Phase 2	RO	University of Žilina
PROTECTRAIL	The Railway-Industry Partnership for Integrated Security of Rail Transport	IT	Railway comp. Slovensko
SALIAN T	Selective Antibodies Limited Immuno-Assay Novel Technology	UK	University of Žilina
SMART	Scalable Measures for Automated Recognition Technology	MT	Comenius University in Bratislava
FREESIC	Free Secure Interoperable Communications	SK Ardaco s. r. o.	Ardaco a.s. National security office of SR, World Consult a.s.
SAVELEC	Safe Control of Non-Cooperative Vehicles through Electromagnetic Means	ES	Armed Forces Academy of gen. M.R. Štefánik

Acronym	Name	Coordinator	Participants from SR
CATO	CBRN Crisis Management Architecture, Technologies and Operational Procedures	IL	VÚJE a.s. J. Bohunice
The House	Enhancing European Coordination in National Research Programs in the Area of Security of Major Events	IT	Ministry of Interior of SR
COBACORE	Community Based Comprehensive Recovery Proposal Restoring Security and Safety in the Time of Crisis	NL	University of Žilina
SPICED	Securing the Spices and Herbs; Commodity Chains in Europe against Deliberate, Accidental or Natural Biological and Chemical Contamination	DE	Food Research Institute
LIPSE	Learning from Innovation in Public Sector Environments	NL	Matej Bell University in Banská Bystrica
ESENET	Emergency Services Europe Network	IT	ERUPSI s. r. o.
RESPECT	Rules, Expectations & Security through Privacy Enhanced Convenient Technologies	NL	C o m e n i u s University in Bratislava

3.1. Security within the Horizon 2020 Program

Horizon 2020 Program is divided into blocks: excellence research, industrial property and safe society. We can consider a success that during the financial crisis period 70.2 mld. € have been allocated, with more than 3.5 mld. € allocated for the research of safe society. Regarding the implication of Slovakia within the security research of 7th FP we expect our participation in Horizon 2020 to be an increasing one. The topics for this research elaborated within Program Committee of Security within the 7th FP, valid for Slovakia, are the following:

a. Forensic science and techniques: in-situ tools, remotely controlled technologies to examine crime scene in case of an accident or terrorist attack involving CBRNE materials;

b. Law enforcement: analysis and fusion of heterogeneous data, analysis of terrorist-related content on the Internet;

c. Urban security: new challenges connected with large urban environment, large-scale pandemic,

d. Crisis management: measures and technologies regarding impact of

climate changes, demonstration activity on large scale disasters and resilience of EU external assets against major identified threats or causes of crisis;

e. Critical Infrastructure: protection of infrastructure from attacks;

f. Border crossing points: biometric-based border checks, public-private partnerships in integrated border management;

g. Supply chains: identification of people, inspection of large volume freight;

h. Ethical Societal Dimension: ethics in border control, cyber security and privacy, third world countries impact on climate changes in Europe.

The research focus has shifted into the field of solving crisis in general, not just crises related to terrorism as it was the approach in the past.

3.2. EU Strategy for the Danube Region

European Strategy for Danube Region has been accepted by the European Council in 2011, with 9 countries involved and 5 non-member states. One of the priorities of this strategy is security and countering the organized crime. Danube region

is a region of borders, which suffers migration tensions, climate changes, economic and social differences. According to statistics, among the first ten countries of the world with the most expanded corruption, four positions belong to this region. Thus cooperation among the countries of this region within the Horizon 2020 should be one of their priorities.

3.3. Industrial policy of the EU with regard to security

With all the recent developments of security research and applications, there is also an industrial policy that requires increased attention. The sector has a remarkable potential and the global world market represented 103 mld. € and more than 2 mil. employees in 2011. EU holds approximately 30 mld. € of it and has a dominant position on the physical protection systems sector (Table 2).

Following the mutual policy of EU in the field of security, we can examine also programs of individual member states.

Table no. 2 Security financial market of Europe (2011) [4]

Sector	EU market estimate [mld. €]	World market [mld. €]
Aviation	1.5 – 2.5	5.2
Navy	1.5 – 2.5	6.7
Borders	4.5 – 5.5	9.9
Infrastructure	2.5 – 3.5	12.6
Information systems	4.5 – 5.0	19.4
Physical protection	10 - 15	39.2
Protection clothes	1.5 – 2.5	10
Total	26 – 36.5	103

4. NATIONAL PROGRAMS

National programs of security in Brussels have been presented by Germany, Romania, Finland and Norway so

far. These are countries on the borders of EU or they have badly past historical experiences.

As an example we can mention the Norwegian program, which was financed for 2006-2011 with the budget of 15 mil. €. It focused on technical solutions, standardization and training of people and analyzed the relation between maintaining the principles of liberal society and the level of acceptable risk. It also showed the negative side of outsourcing (bureaucratization and weakened contacts, which represents an important threat to overall security) and the need for new approaches in fighting terrorist like activities.

In regard of counterterrorism measures it promotes “weaker” approaches, such as prevention and protection against attacks by using means based on information systems. The irony is that the program underestimated the dangers of homeland terrorism (e.g. Anders Breivik’s attack which caused 77 casualties). An important lesson learned is that we should not underestimate the rising danger of far right wing terrorism fed by the crisis.

The national Slovak position regarding security and security related research depends on the overall posture of the country, which is influenced by the following facts:

- SR is on the border of EU;
- has large water supplies available;
- deploys military contingents into different areas of the world;
- aspires to build broad-gauge railway, that could become a channel of positive as well as negative activities;
- it is in the process of building costly infrastructure from the EU structural funds;
- it is increasingly becoming a target country for immigration.

Based on the aforementioned facts and the analysis of the outcomes mentioned in the White Book of SR Defense, new steps were taken in order to assure the accomplishment of Armed

Forces strengthening strategic objective.

In this respect, the main measures envisaged include:

- organization and deployment changes;
- downsizing commander structures at the strategic and operational level;
- strengthening combat and deployment skills of SR Air Force;
- completion of a mechanized brigade;
- downsizing structures of logistic support;
- centralization of competences;
- restructuring plans establishment, with an accent of financial sources available for their successful realization.

Special attention will be paid to the military cooperation within V4 countries, the main tasks being focused on:

- exchange of experience with MKM;
- searching for new projects according the concept of "Pooling & Sharing";
- creating the V4 countries Battle Group, as part of the EU Battle Group.

In line with the aforesaid tasks there has been elaborated a development and modernization plan of SR's Air Force for the interval 2014-2024, divided in two time horizons: short-term (until 2016) and long-term (until 2024). Similarly, the resources allocation was divided accordingly into tasks concerning defense resources and projects, financed by the Slovak government [5].

For the short-term time horizon the tasks financed from the budget include:

- modernization of IFV vehicles;
- acquisition of light 4x4 armored vehicles;
- creation of a mobile centre of command and surveillance (CRC);
- creation of a modern communication and information system (MOKYS);
- modification of the vehicle endowment.

For the long-term time horizon the forecasted tasks include changes and advances in the modernization of:

- training aircrafts;
- combat and multipurpose helicopters;
- fighter planes with multipurpose tactical planes;
- air defense systems.

All the intended measures depend on the economic conditions and public financial resources available to be allocated for the necessities of the SR Department of Defense.

5. CONCLUSION

Not just our environment, but also worldwide security environment is at present significantly influenced by the rise of new military and non-military threats. This situation is also influenced especially by globalization, continuous economic crisis and terrorism. Thus, it is necessary that all countries deal with questions of security and pay attention to maximize their defenses.

The situation in the society and changes in security conditions require more complex claims for providing security. These reflect in the wide range of measures – political, economical and military.

Science and security research have found their place in this systems. The outcomes are more often applied in particular military programs (both in SR and other EU countries). It is necessary that resolutions and plans be transformed into convenient resource frameworks and reflected in specific activities in the field of armament and human or material resources allocation.

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STRATEGIC MANAGEMENT OF HUMAN RESOURCE AND THE SLOVAK ARMED FORCES

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Human resource management is an important area of strategic management of the organization which focuses on everything that concerns people. The main role of human resource management is to contribute to organizational performance and its continuous improvement. In order to fulfill the aims and objectives of the organization, it is necessary that organization top management has a clear-cut view of human resource management strategies that would work in practice. One of the most important and most challenging aspects of human resource management can be applied also in organizations characterized by specific features such as the Armed Forces of the Slovak Republic.

Key words: *human resource management, personnel strategy, career of professional soldier.*

1. INTRODUCTION

According to M. Armstrong, human resource management is defined as a logical and strategic approach to managing the most valuable of what organizations have - people who work in the organization and who individually and collectively contribute to the achievement of organizational goals. Human resource management can be regarded as „a set of interrelated policies emanating from a certain ideology and philosophy”. [1]

We can boldly state that the previous definition should be applied by the top management of the Armed Forces of the Slovak Republic (AF of OS). The mission of the Armed Forces is to defend and protect the territorial integrity of the Slovak Republic as well as to provide assistance to population in case of various natural disasters.

Since its creation in 1993 and throughout its relatively short history the Armed Forces of the Slovak Republic have passed through multiple transformations that have affected particular organizational and rank structure as well as the number of its personnel. An important and significant step in terms of human resource management was the complete professionalization. It was the factor that necessitated a new approach in the implementation of HR policy and strategy. In terms of the Armed Forces' role, the personnel tasks are expressed in various doctrines such as the Strategy of Defense, or the Personnel management Doctrine of the Armed Forces of the Slovak Republic.

An important document in the field of human resource management is the “Act. 346/2005 Coll. on the state service of professional soldiers of the

Armed Forces of the Slovak Republic and amendments to certain laws” that came into force on September 1st, 2005. Different parts of this Act have been developed in accordance with the different stages of management regulations of the Armed Forces.

Since the beginning of the transition process several documents describing the direction the Armed Forces should proceed and the targets that should be achieved in each year have been issued. These documents are interlinked and in practice we describe them with the term model. Since the beginning of the Armed Forces reorganization the following three models were created.

The 2010 Model was first promulgated in 2001 under the name of The Long-term Plan of the Structure and Development of the Armed Forces. The aim of the Armed Forces development was the transformation of the Army of the Slovak Republic to a relatively small, but high quality force, adequately equipped and well-trained.

The 2015 Model, fully titled “Long-term Development Plan of the Ministry of Defense with perspective to 2015”, valid in the Armed Forces even today, determined to assure the operation, and development of the Armed Forces. There are also crucial factors limiting the defense resource that consist of human, material, and financial resource. The size of available resource proportionally influences quality and quantity of tasks and measures ensuring the defense of the Slovak Republic.

The 2020 Model, the latest one, is due to be implemented in the Armed Forces as of the 1st January 2013. Responsible executives of the Armed Forces planned to retain structure of funds distribution, assigned to the Ministry of Defense, as follows: 80 % to operations and 20 % to investment and modernization.

Each of these models demands recruiting new professional soldiers and overall improvement of the Armed Forces.

At the end of the introduction, it must be noted that the structure of models of the Armed Forces, as declared, is particularly affected by the political and economic factors. Therefore, many plans have not been implemented yet, for instance in the area of technology modernization. Some progress has been achieved in the field of social security which was amended by Act no. 328/2002 on the social security of policemen and soldiers. Current problems of the Armed Forces are expressed in The White Paper on Defense of the Slovak Republic. It focuses on the strategic defense review and future trends in the area of the human resource management. As the actual state shows, in the field of human resource management of the Armed Forces it is necessary to adopt a new personnel strategy that will result in the adoption of a new act on military service. Due to several regulations of the proposed law on military service of professional soldiers the military profession is declared as lifelong vocation. In addition to the new structure of the Armed Forces, it will be necessary to stabilize staff through motivational tools attracting the younger generation to the Armed Forces.

2. HUMAN RESOURCE MANAGEMENT STRATEGY, ITS THEORETICAL BASICS AND THE ARMED FORCES OF THE SLOVAK REPUBLIC

The objective of HR management in the Armed Forces is highly qualified and learned professional force soldiers who should be considered the most valuable asset of the armed forces. That is why, it is necessary to make the changes maintaining such military staff in stabilized personnel environment.

The strategy of developing future capabilities of the Armed Forces should result from a combination of reasonable military requirements to ensure the performance of the entire spectrum

of task forces and a realistic view the country's possibilities within the next 10 to 12 years (White Paper).

In the case of HR strategy development in the Armed Forces, it is necessary to clarify some basic theoretical assumptions.

The word 'strategy' is derived from the Greek word *strategos* (general) and originally it referred to the broader context of the art and science of how to manage military operations and how to command the troops. Throughout the 20th century the term 'strategy' has been transferred from the military environment into the business world and has become its integral part. In management theory and practice the strategy is mainly understood as the series of long-term decisions and strategic goals the organization should attain and the intended methods to achieve these objectives. Strategic management is an approach that is applied when setting and changing the strategic objectives and determining how to achieve them. It can be seen as a process that consists of formulating visions, philosophy, missions, objectives, organization, analyzing external and internal environment of the organization, choosing a suitable strategy to achieve strategic objectives, designing organizational changes, administrative measures and control system to implement the strategy.

Strategic management is characterized by the following features:

- In general, the future is uncertain. Distant future will be much more difficult to predict. Consequently, it is necessary to prepare for different scenarios and that might disrupt any developments, unexpected changes and developmental reversals.

- In this context, it is necessary to pay constant attention to the development of adaptive capabilities of the organization.

- Achieving long term targets is a more risk prone attempt than the process of achieving close, tactical and operational objectives.

- The effects of strategic decisions are

of long-term nature and directly contribute to the organization's ability to remain outdoors.

- Achieving the strategic goals requires greater coordination efforts and continuous monitoring of the situation.

- Strategic decisions are related to risks.

The Development Strategy of Armed Forces depends on the strategy of human resource. Therefore, let us take a closer look to its general definition. "The strategy of HR management is making decisions on the intentions and plans of the organization concerning the human resource - the nature of their employment, strategy, policies and practices of acquisition, staff training and development, performance management, remuneration and labor relations." [5]

"HR strategy is one of the sub-strategies of the organization, expresses the organization intentions for the future, long-term and comprehensive aim of the company (linked with the other goals of the organization) to facilitate the achievement of organizational goals." (4)

Content of those definitions is also valid in terms of the Armed Forces, taking into account their specific activity. This means that the main objective of the Armed Forces is to ensure tenability of the country.

The question of demands for strategic human resource management is important. Strategic human resource management has the following characteristics:

- Strong, visionary organization leadership - (linked to the Armed Forces personnel planning activity and including awareness of current state, goals to be achieved and how to achieve them);

- Well formulated mission and attributes (Armed Forces are commissioned for the country's defense and the values being recognized are: patriotism, discipline, high education level of staff, etc.);

- Clearly expressed strategy of organization - (maintenance of combat readiness of armed forces, well-trained personnel preceded by proper initial selection and continuous motivation);

- Coherent team of organization top

management - (plays a crucial role in the strategic decision within SR AF);

- Active approach of human resource managers to solve problems of the organization - (the active involvement and responsibility of the individual levels of armed forces management for the personnel area);

- Awareness of the importance of the human factor as one of the key factors of success (an army that consists of uneducated and ill-trained soldiers is inoperable).

A comprehensive HR strategy is formed to enforce changes in the organization as a whole in order to redirect thinking and attributes of the organization and change its culture, to establish the principles and practices of knowledgeable management and develop an organizational culture that is beneficial to high performance, commitment, and trust.

Specific HR strategies are focused on different areas of HR management and designed to determine or change established practices and methods to implement the personnel actions. In the Armed Forces practice they are mainly represented by:

- the strategy of military personnel planning;
- the strategy of military personnel selection and replenishment;
- the strategy for training and development of professional soldiers,
- the remuneration policy of professional soldiers;
- the strategy of official (occupational) relationships, etc.

Well-formulated, stable, understandable and fair personnel policies are essential for the strategic success of organizations.

“Personnel policy is the best and most general tool for carrying out personnel strategy. It can take different forms. It may be an internal document of the organization or just uttered and then more or less rigorously daily upheld and enforced in practice. Anyhow, personnel policy contains certain principles, rules,

emphases and preferences related to the management and development of HR. They serve to create favorable conditions for the application and development of HR (manpower) and a uniform framework for managers to optimize staffing, employee issues and solutions for shaping the employment relations in the organization.” [3]

The overall organization of personnel policy usually integrates many sub HR policies - employment policy, remuneration, personnel training, education and human resource development, increasing human potential, promotion and career development, employment security policy, health policy, social policy, equal opportunities or more.

The starting point for the creation of personnel policies of the organization may consist of the following principles:

- The principle of the importance of human resource - professional servicemen are, according to the current high demands required placed upon the Armed Forces and its technological advancement, considered a significant source.

- The principle of seriousness – this is to be enacted by professional soldiers who need to meet high requirements, both in case of their capabilities and service deployment, as well as professional growth and loyalty and devotion to Armed Forces.

- The principle of accommodating - Armed Forces respect both group and individual needs, requirements and interests of professional soldiers that are consistent with the attributes, customs, norms, interests and intentions of the Armed Forces.

- The principle of justice - the Armed Forces must exercise appropriately all rules of law, and provide all personnel with the same opportunity.

- The principle of openness - when dealing and communicating with professional soldiers all management tiers must apply open, clear, and responsible access. This principle cannot be applied to confidential information.

- The principle of fairness - in the relations and contacts between professional soldiers and their superiors must be polite, tactful negotiation is mandatory and should be based on the principles of constructive cooperation, understanding of the issues and open style.

The prerequisites for the preparation and formulation of HR Strategy in the Armed Forces respecting current external conditions (in a broader scope) that affect the overall management of human resource are:

- Development of new technologies and changes in warfare technology (it affects the nature and content of work and requirements for training and qualifications of professional soldiers);

- Economic conditions (business cycle affecting the employment);

- Government policy and legislation related to the Armed Forces;

- Education and qualifications structure of population (these are particular potential applicants for service in the Armed Forces);

- Social and cultural influences, (e.g. female employment in the Armed Forces);

- Demographic effects (population, demographic composition of the workforce, level of education, age, gender, migration, etc.);

- The current situation in the labor market (wage levels and employee benefits);

- Value orientation (professional orientation, social needs, etc.)

External conditions of HR management are constantly changing. Many of these impacts are evolving slowly (composition of the workforce); others show rather rapid changes (new laws). Some of the external conditions affect the organization internally in different ways such as:

- The nature of the organization's activities - Armed Forces;

- Size of the organization - the number of the Armed Forces personnel and the organizational structure;

- Economic situation - funds earmarked for defense, technical and technological equipment;

- Social, professional and qualification structure of the Armed Forces,

- Organizational culture – it results from the specific activities of the Armed Forces, etc.

The status of personnel management in the Armed Forces and the implementation of HR strategies and policies depends on the stance of senior management of Ministry of Defense, the management position in the hierarchy of the Armed Forces, the kind of policy in the field of personnel (in the broadest sense the people management policy) the organization applies. The HR management and the resulting staffing strategy and policy are also influenced by the individual managers - commanders of the Armed Forces units and equipment as well as professional level HR professionals in various structural levels of the Armed Forces.

3. HUMAN RESOURCE STRATEGY AND RESPONSIBILITY FOR ITS IMPLEMENTATION WITHIN THE SLOVAK ARMED FORCES

How many professional soldiers are to be taken in and what attributes will be of the greatest importance should be planned in advance. Therefore, in terms of the Armed Forces, necessary planning is conducted to ensure efficient selection of professional soldiers. It must be based on a fixed personnel strategy and the goals of the organization and it should comply with the mission and vision of the organization.

The processing of personnel strategy and personnel planning in the Armed Forces are performed by two branches:

1. The Ministry of Defense of the Slovak Republic (hereinafter the Ministry of Defense);

2. The General Staff of the Armed Forces of the Slovak Republic (hereinafter GS SR OS).

The Ministry of Defense is internally

divided into a number of basic branches among which the personnel policies and personnel planning forefront component is called Section of Defense Policy, International Relations and Legislation. The above section deals with the activities related to the activities of the HR policy, remuneration policy, social and housing policy, education including foreign language education and top sport, as well as sending the Armed Forces personnel forth to the operations and missions outside the territory of the Slovak Republic.

The General Staff of the Armed Forces is internally divided into many departments among which the Department of Operations Support has the important position in personnel policies and planning. This Department itself is divided into three sections. Out of these, the prominent position in personnel management takes the Section of personnel management. The Section of Personnel Management is divided into four subsections that are: staff planning, integration programs, staff improvement, and staff support. Of those subsections the implementation of activities in the field of HR strategy and personnel planning in the Armed Forces involves mainly the Staff Planning Subsection that in particular provides the following services:

- Develops policies and concepts of human resource according to the conditions of the Armed Forces and ensures their implementation in relation to professional servicemen and employees carrying out works in the public interest;
- Handles internal normative acts, standards and regulations for the implementation of personnel and social policy and human resource management in relation to professional soldiers, to employees carrying out work in the public interest in the Armed Forces;
- Makes out the services table of units and facilities in the Armed Forces;
- Supervises personnel management

activities in all its areas;

- Processes documents for systematic arrangement of ranks based upon the approved internal organizational classification of departments, units, offices and equipment of Armed Forces;
- Processes the proposal for system arrangement of posts for professional servicemen in the scope of the Armed Forces and the head of the Ministry Staff, processes system arrangement proposal to temporarily set aside professional servicemen and ensures adherence to limits of ranks according to the above system arrangements;
- Manages the overall limits on the number of professional soldiers by kind of the armed forces, military specialties and ranks, sets limits for personnel replenishment;
- Evaluates the state of preparedness of personnel as a part of operational readiness of units;
- Plans and manages replenishment and deployment of the Armed Forces and so on.

The process of designing recruitment strategies and personnel planning culminates in the elaboration of the staffing plan that identifies the need for a given number of professional soldiers to be recruited and selected for the Armed Forces. Therefore, the personnel planning is followed by continuous recruitment and replenishment, the requirements of which are generated by personnel planning applied in practice.

The recruiting strategy of SR AF is based upon the search of future professional servicemen among high school, college and university students. The situation on the national labor market as well as the number of high schools and universities allows replenishing numbers of professional servicemen with the required education.

The recruitment and selection of new professional soldiers are ensured by the Personnel Office that is subordinated to the General Staff of the Armed Forces and is located on the premises of the Academy of the Armed Forces

of Gen. M. R. Stefanik in Liptovsky Mikulas. In order that those activities may be ensured it has eight subordinate Personnel Recruitment Groups being known in the past as Recruiting Centers. They are located in regional cities and their current deployment is as follows: Bratislava, Trenčín, Nitra, Banská Bystrica, Žilina, Trnava, Prešov and Košice. The Personnel Recruitment Groups work according to the plan and carry out their main task in contacting qualified citizens so that the required number and the necessarily skilled personnel is acquired.

All potential soldiers selected to join the Armed Forces undergo, after passing the selection procedure, vocational training, the length of which depends on the future profession. In compliance with strict selection criteria recruiters should sign a three-year contract for operations in the Armed Forces. After the expiry of the three years the less adequate soldiers are released from the Armed Forces and their places are taken up by newly recruited ones. Those that met requirements shall be submitted the proposal to conclude a new contract.

In order that the Armed Forces procure enough applicants for service of professional soldier and thus maintain the desired stabilized composition of the professional servicemen staff it is necessary to implement ongoing personnel marketing.

Career development of professional servicemen depends on each military specialization that provides in each rank several models of business careers.

4. PROBLEMS AND POSSIBLE SOLUTIONS TO THE CURRENT SYSTEM OF HUMAN RESOURCE MANAGEMENT IN THE SLOVAK ARMED FORCES

The system of personnel management in the Armed Forces has undergone since its inception several changes that

have both positively and, more often than not, negatively impacted upon the implementation of HR strategies and policies. Adoption of several laws affecting civil service of professional soldiers (Act 346/2005 Coll.), as well as the Social Security Act of policemen and soldiers (Act 328/2002 Coll.) has played an important role.

Original law on civil service of professional soldiers (Act 346/2005 Coll.) was modified and successive unsystematic changes were made to the detriment of the system. The proposed amendments have not been fully accepted and largely withdrawn on the grounds of great voluminousness. The implementation of HR strategies and policies, as well as the entire system of HR management in the Slovak Armed Forces is determined by financial limits which significantly affects the ability of replenishment of the structures of the armed forces, as well as the actual personnel numbers of the Armed Forces. As a result, the "paid numbers", or the filled positions, must be monitored and compared with the required numbers set in the tables included in the planning documents of the Armed Forces.

In addition to these aspects, there other negative phenomena affecting HR management appeared. The Armed Forces continuously lose positions on the labor market which means a loss of competitiveness of the military occupation compared to civilian labor market.

This fact is influenced by several factors, such as:

- Constant organizational change;
- Unstable legislation, making the whole system unstable;
- Fluctuating costs of the defense means, etc.

Another negative aspect may be the disillusionment of the new recruits upon their arrival into the military unit, when because of financial options and constraints, they cannot fulfill those tasks they were recruited for.

In terms of the SR AF, the positions that normally on the civilian labor market are several times more reimbursed than in the military cannot be occupied. Wage increases in the armed forces ceased to copy wage increases in plainclothes life and the benefits provided by the armed forces are by far exceeded in the civilian sector by many employers.

Uncertainty in the social security of professional servicemen also negatively impacts those interested in the military service and still encourages release upon servicemen's request. Aging staff creates conditions for increasing the number of soldiers dismissed due to obligatory reasons.

For these and other reasons changes in the area of personnel strategy, as well as in the whole HR management of the Armed Forces are mandatory and they should focus on making amendments focused on:

- Development and Stabilization of the personnel environment by changing the military profession of qualified key personnel to life time employment and by stabilizing the social security of troopers;

- Selection of alternative forms of personnel replenishment (active reserves, short-term contract or voluntary military service) [2];

- Introduction of the institution of temporary civil service which guarantees an adequate turnover at squad and platoon level;

- The introduction of permanent civil service for professional servicemen, guaranteeing long-term retention of higher military commanders at the operational and strategic level;

- Remuneration system - strengthening the motivating factors to increase the attractiveness of contracts, as well as maintaining a selected group of military experts in active service throughout the duration of their career;

- Education - Armed Forces Academy of General M. R. Štefánik must develop a quality entry of military education and military training of future military professionals and then to ensure their

systemic training during their military career including the improvement of their language skills.

All of the above can be developed and ensured provided that the allocation of adequate financial resource meets the demands set out in the strategic documents of the Armed Forces.

5. CONCLUSION

The development of HR management within the Armed Forces of the Slovak Republic requires an elaborated and high quality HR strategy. This can be achieved determined by adoption of new laws related to civil service and professional soldiers, and the amendment of the Act on Social Security. The objective of human potential development in the defense sector is to stabilize top, skilled professional servicemen, to maintain adequate social conditions, to improve the system of basic training and career education and to enhance the effectiveness of the Armed Forces as well as professional erudition of civilian employees in the security, defense and military affairs.

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AN EMPIRICAL SURVEY ON BASIC MILITARY TRAINING IN SLOVENIAN ARMED FORCES

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Before employment in the Slovenian Armed Forces, all candidates have to finish basic military training. The empirical survey, done in 2011 on a group of military candidates in a Slovenian Training Center, checked the motivation, level of skills and education, attitudes of leaders, military identity, prestige and social support of these candidates. The results confirmed the skills' and fighters' orientation of Slovenian soldiers, but surprised with the paleomodern motivators for military job.

Key words: *basic military training, Slovenian Armed Forces, training center, unit cohesion, motivational factors, leadership, military reforms.*

1. INTRODUCTION

Basic military training in Slovenian Armed Forces (SAF) is an obligation for all candidates for employment in that institution. As in other military organizations also in the Slovenian one there is a need for freshmen's transition into military professionals. The 3-month program of basic military training in Slovenia was established after the suspension of conscription in 2003, and was carried out by a team of instructors and officers in a training center that belonged to the Command of Doctrine, Development, Education, and Training. In a process of transformation of SAF in last few years the training center was reorganized in the sense that all the activities and command are executed by non-commissioned officers. Since the Command of Doctrine, Development, Education, and Training has also been transformed (back) to the Center of Military Schools, the Training Center is now part of the Center of Military Schools.

The Training Center is located in Vipava, in the Western part of Slovenia, in upper part of Vipava Valley. This is

not meaningless. Namely, in that part of Slovenia there are difficult climate conditions – strong wind called burja, cold and windy winters, hot and dry summers. The climate definitely influences the basic military training of the military candidates. The center is comprised of some relatively old military barracks, where the command, classrooms and dormitory are located, as well as a library and a chapel. There are also some storage buildings, the kitchen and dining room, a small military museum, some training facilities (assault course, simulators, etc.), and a brand new gymnasium. Close to the center there are small firing ranges, a new modern military shooting range and also terrains for moderate mountaineering. The Training Center has been awarded several times for its clean and tidy surroundings.

As stated on the official recruitment webpage of SAF [1], the basic tasks of the Training Center are:

- executing the programs of basic military training of candidates for professional soldiers, soldiers on volunteer military service, and military reservists;
- executing the programs of military

training for acquiring military occupational specialty;

- participation in executing specialist parts of training of non-commissioned officers, officers and warrant officers;
- executing military practice for the students of the military modules at faculties.

The program of basic military training has been slightly changed several times. The main changes of the program are usually connected to its arrangement – from a unique one to the gradual program with more phases. Namely, there are several groups of candidates that have to finish the basic military training: candidates for private soldiers, candidates for warrant officers, candidates for officers, and also students of particular study programs, the military reservists and the soldiers on volunteer military service. The professional needs of those groups are, of course, different. So, the first training phase is usually the same for all candidates, but the next phases are adjusted to their future military role.

Today's program aims at the candidates who:

- master basic military knowledge and skills,
- develop working habits,
- establish a high level of patriotism and other values,
- develop a proper attitude to the military job and military organization,
- develop loyalty to the SAF and the Slovenian state,
- achieve a proper psycho-physical preparedness for military service,
- develop military discipline and self-discipline, and
- develop a sense of belonging to the military collective (postanivojak.si).

Following these aims, it can be concluded that the basic military training in SAF has its own framework. Despite that, the basic military documents – the military doctrine, for example – speak about military training and education as a complete and uniform process [2].

It is defined as a process of acquiring and developing special and functional military knowledge, skills and habits for executing the tasks of military defense and other tasks of SAF [3]. In debates of experts inside and outside of the military it was exposed several times that the process of military education and training should be partly split. The personnel at the lower organizational levels should deal mostly with training and those at the higher mostly with education. However, the middle levels – the cadets of School for Officers, for example - should be trained in some skills and educated in military and other needed knowledge. Anyway it should be stressed that performing military job demands skills and knowledge of different kind at all organizational and hierarchical levels.

Regarding the skills and knowledge of soldiers that finished the basic military training in the training center, there were a lot of dilemmas in the past. In the units the military leaders were not satisfied with the new soldiers that had just come from the training center. It can be concluded that in SAF the basic standards of military performance are not viewed similarly by unit commandants and by the training center. The precise instructions and also a rotation of instructors between the units and the Training Center could help overcome the differences in procedures and performance.

Lately, the Training Center has also had a problem with the number of candidates. Due to the present budget crisis and also diminished interest of candidates to get employed in the military, the SAF limited its size to 7600 of permanent members (plus 1500 reservists) (as set out in the Mid-Term Defense Program 2013–2018) [4]. Consequently, the new candidates enter the military only to replace the military men and women that left the military for various reasons. In addition, there

will be only three terms of training for soldiers on volunteer military service in 2014 (postanivovjak.si) and the training for the students will stop. It seems that, according to the training needs, at the moment there are just few positions for instructors in the training center. However, it is the most important just to keep the Training Center operative.

The Faculty of Social Sciences of University of Ljubljana – mostly the people in the defense science area and research field – has established relatively good relations with the Training Center of SAF. Many students from that faculty finished the military basic training there. Unfortunately, in 2014 there will be the last military training for the students since the military module program has been canceled. Few years ago a small group of researchers at the Defense Research Center at the Faculty of Social Sciences got also an opportunity to make an empirical survey on basic military training in SAF. The article presents and comments the results of the survey.

2. METHODS AND SAMPLE

The survey on basic military training in SAF was originally part of a cross-country survey, initiated by some researchers of ERGOMAS (European Research Group on Military and Society). They composed a questionnaire and invited the researchers from some other countries to participate in the survey. The survey covers issues such as different expectations during the basic training (demands and obstacles, knowledge), reasons to apply, quality of training, training motivators, self-perception of candidates, leadership, team spirit, profession's prestige and social support.

In Slovenia [5] the questionnaire was acquired in June 2011 from Erik Hedlund [6]. Translating, adjusting the questionnaire, and getting the permission for the research from the Defense Ministry took several months -

from June till September 2011. The field research was done on the 21st October 2011 in the Training Center in Vipava. There was a group of 19 candidates (18 men and one woman) who were in the last week of the first phase of basic military training. The group of candidates, respectively respondents, was composed of two subgroups: candidates for private soldiers (13) and candidates for Officers School (6). Some of the respondents (16) had previously finished one of the alternative trainings (three months volunteer military service) and some of them were total newcomers (3). Thus, there were two groups of respondents in terms of the period they had spent on basic military training - two months (16 respondents with previous accomplished training) or six months (3 respondents with no formal military experiences).

The respondents finished at least three-year secondary school, one of the respondents finished postgraduate study. They came from different surroundings (urban and rural), they are either single (10 respondents or 52.6 per cent) or live with a partner (9 or 47.4 per cent). On average they were some less than 24 years old. They did not come from families with military tradition (14 respondents or 73.7 per cent had absolutely no military tradition).

The results of the survey show quite clearly the nature of basic military training in SAF and reflect some characteristics of our military. The results are commented based on the information gathered through other information sources on SAF and also through the observation of training at the training center by the author.

3. RESULTS AND DISCUSSION WITHIN THE FRAMEWORK OF MOTIVATION THEORIES

At the beginning of our study we wanted to see how motivated the

candidates were for the military job, the reasons for the them to join the armed forces. Actually, the question asked concerned the reasons for starting basic military training, even though entering the basic military training is – in the case of the respondents – just the first stage of joining the military. Thus, the answers also helped us understand why the respondents decided for a military job.

The respondents were very motivated to join the military. On the question on motivation for military service, a mean score on a 1-5 scale was 4.47, the highest grade 5 was chosen by 11 respondents (57.9 per cent). But before we show the factors contributing to this high job motivation of the respondents, we need to briefly overview the theoretical anchoring of our study.

Theories of motivation (psychological, sociological, organizational, etc.) mention various motivational factors. These factors are categorized as material and nonmaterial [7], intrinsic and extrinsic [8], motives of independence and motives of cooperation and belonging [9], paleomodern, modern, and postmodern [10]. The authors also discuss the connections between the performance and motivational factors. In general, extrinsic motivators can have an immediate and powerful effect, but it will not necessarily last long. The intrinsic motivators are likely to have a deeper and long-term effect (because they are inherent in individuals and are not imposed from outside) [11].

Battistelli's typology is often used to explain the motivation of soldiers for participation in peacekeeping operations [12] [6] and it is useful also for explaining the motives (reasons) for joining the military in general.

When the reasons, respectively motivation, of our survey respondents for entering the military are analysed we can see that three of them earned

very high scores (**Table 1**) – “help needy people in the area of operation”, “contribute to the national security of Slovenia” and “contribute to world peace”. According to Battistelli's typology, all three reasons belong to the category of paleomodern motivation (to be useful to others and to strengthen the country's image at international level). The modern motives (money and other personal and career benefits) are placed on the second position. The results of the survey also show that the respondents do not think that the military is more profitable for them than private industry. But the regular income during recruit school motivates them anyway.

Table no. 1 Reasons for starting basic military training (answering on the scale 1 - 10)

	Mean
Have an adventure	4.58
Personal development	6.42
Travel to foreign countries and cultures	6.05
Friendship within your own contingent	5.21
An opportunity to earn money	6.16
Earn money to finance future studies	4.37
Comfortable lifestyle (no need to cook, wash clothes etc.)	2.00
Contribute to world peace	7.05
Contribute to the national security of Slovenia	8.68
Help needy people in the area of operation	9.11
Had nothing else to do and no better option	1.42

The second question interpreted in the article deals with the expectations of respondents regarding the expectations about the effects of basic military training. Among the challenges (Table 2), the physical one was the most expected by respondents. In fact, in the

SAF there is a lot of attention paid to the physical preparedness. The military has put the information on physical standards on web pages (postanivojak.si – Poklicni vojak) in order to remind the candidates to prepare in advance. Besides, the physical and psychological preparedness and resilience are usually interpreted together as one urgent condition for executing military job. The candidates are often advised to be physically fit to be also resilient to the stress.

Table no.2 What the respondents expect from recruit school (answering on the scale 1 - 6)

	Mean
Training from which I benefit personally	4.63
Physical challenges	5.21
High psychological stress	3.42
A good team spirit	4.37
That I become more resistant to stress	4.05
That I become more self-disciplined	4.58
That I benefit from military training in civilian life	3.84
That my character will be strengthened by military service	4.37

The next topic is the military training itself – what the respondents think about it and what it enables. The results show that the majority of respondents are content with their current situation at the training center and also with the quality of training in general. Particularly, the contribution to the military knowledge and skills was well evaluated, with the exception of knowledge of other nations' cultures. Contrary to some other surveys [13], the respondents to this survey said that their motivation in the military had not declined since starting recruit school (**Table 3**).

Table no. 3 Respondents' opinions on their basic military training (agreement with the statement on the scale 1 – 6)

	Mean
I'm content with my current situation at the recruit school	4.63
I'm content with the quality of the training at the recruit school	4.74
There is mutual respect for one another in our platoon	3.47
My motivation in the military has declined since starting recruit school	2.32
Basic military training has increased my general military knowledge	5.47
Basic military training has increased my specific position skills	5.11
Basic military training has increased my knowledge of other nations' cultures	2.42
Basic military training has increased my social skills	3.68
Basic military training has been very relevant for peacekeeping operations	3.74
Basic military training has been very relevant for war fighting operations	3.79
Basic military training has been of very high quality	4.53

If we further consider the motivation for the training we can see that the platoon leader and the exciting training were the best motivators for the respondents. Also, support of parents, other soldiers and others in the social environment were important (Table 4). As already mentioned, the money was not a salient motivator of the respondents, however, it was important, too. The respondents did not find the money (salary) during the basic training as the motivational factor for training. The military is regarded as a regular job by many soldiers, but - especially with the cuts of the defense budget in last few years – the salary itself does not motivate them for work due to cuts of almost all allowances [14].

Table no. 4 Training motivators
(answers on the scale 1 – 6)

	Mean
Squad leader	4.05
Platoon leader	4.84
Company commander	3.95
Battalion/regiment commander	3.18
Team spirit	3.95
Support from my environment	4.37
Support from my parents	4.26
Money (remuneration during service)	2.84
Tradition	3.16
Personal benefit in civilian life	2.84
Exciting training	4.63
Colleagues	4.32

As we can see in Table 4, the team spirit is ranged in the middle of the scale of motivators. Team spirit and cohesion are two of the most stressed characteristics of the military units. They contribute to better performance and less stress among soldiers in the unit. In the history of military training there were several attempts to form very cohesive military units like Operation Gyroscope in the 1950s [15], project COHORT in the 1980s [16], etc. The main approach to achieve this goal was common training of the unit from the beginning and also common deployment. Unfortunately, the attempts of “cohort system” were usually unsuccessful due to several factors, often connected to the lack of good leaders or just because the military in general did not support them enough [16]. The alternative more often used is an individual replacement system, where the soldiers are initially trained in the training center and then allocated to the units according to the personnel needs. SAF uses the individual replacement system for training and also for some deployments. However, usually the stabilized units are deployed to the missions. The results of

the survey in Table 5 show that the cadets at the basic military training were aware of the importance of the good team spirit and are willing to help comrades, and they participate in group work. On the other hand, many respondents expressed also some individualism. First, the majority of them (52.6 per cent) decided for themselves about the military career in the future. Second, many of the respondents were not willing to put the group’s needs before their own.

Table no. 5 Leaning toward cohesion
(agreement with the statement on the scale 1 – 6)

	Mean
I follow military rules and regulations even if I’m not observed	5.26
I inform myself about the weekly program	3.84
I will help a colleague with a task that is too hard for him	5.47
I actively participate in group work	5.21
I am very self-disciplined and do things correctly even if I’m not monitored	5.05

Regarding the cohesion it should be mentioned that there are several kinds or levels of cohesion. We can differentiate among horizontal (bonding of people on the same hierarchical level), vertical (bonding of superiors and subordinates), organizational (people share the goals, values and norms of the organization) and societal cohesion (people share the goals, values and norms of the society). Even though the basic military training in SAF is not designed to establish a cohesive unit of candidates, it should contribute to the sense of belonging to the comrades, unit and organization. As established above, the attitude of respondents to the comrades (colleagues) and the unit is twofold. The attitude toward the superiors and the organization is measured with the question on executing the tasks and following rules without supervision. Namely, the individual who is bonded

to the organization is self-disciplined and needs less supervision [17]. The respondents in our survey showed a substantial level of organizational cohesion due to the strong agreement with the statements on following the rules and self-discipline (Table 5).

The work, knowledge, attitudes and behaviour of leaders is an important factor of successful training. The respondents strongly agreed with the statement that good superiors can motivate recruits to pursue a military career (mean score is 5.37 on a 6-point scale). The respondents were also quite satisfied with the leaders' attitudes toward candidates. They mostly agreed with the statement that in general the superiors treated them fairly and respectfully (mean score is 5.00 on the 6-point scale).

The survey also contains a question about the social prestige of the military and a military career, and the question on perception of soldiers. The respondents evaluated the public prestige of the military quite differently. The mean scores are relatively high (Table 6) but the individual evaluations ranged from 1 to 6 on a 6-point scale. Some doubts of military personnel on public prestige of SAF can be understood due to some criticism over our defense policy and some troubles regarding supply of military equipment and weapons. There was also a public initiative to abolish (transform, in fact) SAF [18]. However, the public opinion surveys show relatively good public perception of SAF. In the last few years, the military in Slovenia is ranking high especially in public trust measurements, particularly when compared to the results of other social institutions included in the same measurements. Generally, it seems that the SAF enjoys a stable and relatively good reputation and trust among Slovenian population. In the past, however, there have been some oscillations regarding public trust

in the military in Slovenia. They were more or less connected either to the signs of the politicization of the military, or some other political process (such as non-invitation of Slovenia to NATO in 1997) or to the reluctance of people to serve in the military. Nevertheless, after 2003 trust in the SAF has stabilized at a relatively high level [19].

Table no. 6 Prestige (agreement with the statement on the scale 1 – 6)

	Mean
A cadre position in the military is still highly respected by society	4.32
I think that my environment will support a military career	4.79
The high prestige of an officer motivates me to also pursue a military career	3.84
Officers are still held in high regard by society	3.95

The question concerning the perception of soldiers by their own country answered by the respondents is an interesting and a unique one. Evaluation of oneself and of one's own group is always a difficult task. In the question there were thirteen components (see Table 7) which had to be evaluated by the respondents on a ten-point scale. The mean scores range between 5.79 ("level of civilian professional skill") and 7.05 ("level of military skill" and "soldiers follow rules and policies") that is neither high, nor low. The mean scores show that Slovenian soldiers are relatively good in military skills, that they are disciplined and also physically fit. Some other important components (education, fairness, morals and ethics) are evaluated lower. We can also see that the respondents evaluated the components very differently. Almost all grades of the scale were used at every component to describe the Slovenian soldiers. Consequently the Standard

Deviations of mean scores are very high - ranging from 1.853 (“physical ability/level of fitness”) to 2.692 (“level of fairness”). It means that the respondents had very different experiences with the military, and maybe it also suggests that there are no common views about the Slovenian military (its social and professional characteristics) among its members. When the results are crossed with the military status (candidates for privates or candidates for officers) it turns out that the candidates for privates evaluated the components higher than candidates for officers (due to the small samples only the difference in answers for the components “level of education” and “level of civilian professional skill” are significant). According to that we could presume that the officers of SAF are more pessimistic about the SAF than ordinary soldiers. However, this thesis is statistically not proven by the present survey and should be researched on bigger samples.

Table no. 7 Perception of soldiers of own country (evaluation on the scale 1 - 10)

	Mean
Motivation	6.37
Ambition	6.05
Level of education	5.83
Level of civilian professional skill	5.79
Level of military skill	7.05
Reliability	6.37
Morals and ethics	6.00
Social skills	6.00
Level of fairness	5.95
Level of firmness	6.11
Level of friendliness	6.42
Physical ability/level of fitness	6.89
Soldiers follow rules and policies	7.05

At the end we shall add some discussion about one of the important

issues in today’s defense policies. What is a “nature” of a modern soldier? Is he/she a fighter, peacekeeper or humanitarian? After the beginning of wars in Afghanistan and Iraq at the beginning of this century the armed forces of participating states have started to call for stronger warrior ethos of their armed forces [20] and to train the soldiers in that manner. Slovenia is no exception. High military officers have often stated that SAF would develop into military with fighter’s character [21]. Actually, the analysis of military tasks in last two decades (after the Cold War) shows that most of the armed forces should develop the capabilities and competences to execute the tasks of the whole spectrum of tasks in military and peace operations and also to easily transform from one role to another.

The present survey contains a question as to how the respondents see themselves as military persons. The results show that the war fighter was a prevailing image (mean score on a ten-point scale is 7.11). A peacekeeper got a mean score 6.37 and an aid worker 5.00. The respondents were not unique in answering. The answers ranged from 1 to 10, the Standard Deviations are around 2.8. We can see again, that the self-perceptions are not common. However, the fighter’s character of the training is evident from that particular question as well as from questions on skills and knowledge of candidates.

4. CONCLUSIONS

Regarding the military training, SAF of independent Republic of Slovenia had two crucial points in its (only) some more than twenty years of history: developing training programs for conscripts after 1991, and basic military training programs for professional soldiers after 2003. Of course, this is

a simplification of the evolution of the SAF, however it stresses that the training programs must be also developed and transformed in accordance with circumstances (social conditions and needs etc.). Particularly after accepting the volunteer (professional) manning of the SAF, the training and education of military men and women has been in constant crisis and consequently under reforms. The survey on basic military training that was done in 2011 on a sample of one group of 19 candidates for privates and officers in a Training Center of SAF in Vipava actually did not have a goal to resolve any of the most difficult problems of training and education of SAF. The intention was just to find out which are the prevailing characteristics of the basic military training and warn about the troubles, if there are any.

The survey showed that the candidates for the military job are prepared to contribute to the national and international security goals (paleomodern attitudes), that they mostly see themselves as war fighters, that the money cannot be a motivational factor for the employment in the military, that the physical challenge is the most salient one, that the unit cohesion or corporatism is not obvious (individualism is also present), that leadership is correct, etc. It is good that the level of military skills is evaluated high, but we should be concerned about other aspects of education, and also ethics. In this respect, it is worth concluding that regardless the future tasks of the armed forces education is an important pillar in the development of a professional defense force.

ACKNOWLEDGMENT

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HOW DIFFERENT ARE THE PERCEPTIONS OVER THE MAIN MOTIVATIONAL TOOLS IN MILITARY? AN ANALYTIC HIERARCHY PROCESS (AHP) APPROACH.

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In the Romanian military system, motivational rewards based on merits are precisely regulated and ranked as confined by the military order in which they are mentioned. The existing hierarchy of these main motivational rewards is partly inherited, partly harmonized with other international military partner organizations and it is implicitly assumed that decision makers are able to equidistantly evaluate the merits of their subordinates. Still, decision makers' personal, implicit perceptions over the importance and the effectiveness of the available rewards designed to enhance motivation among their subordinates can alter for good or for worse the efficiency of these motivational tools. This paper aims at quantifying the implicit perceptions of the decision makers in a military organization over four main motivational tools through the construction of a hierarchy based on an analytic hierarchy process approach whose final alternatives are constituted by the four motivational tools. A survey asking for pairwise comparison among criteria, sub criteria and alternatives, completed by the use of two numerical scale alternatives, led to priority vectors assessing the relative importance of the rewards considered. The findings on the perceived importance of the rewards might lead to further research, with a potential discussion on the design of the motivational tools or on a different approach to distributing the existent ones.

Key words: *decision making, analytic hierarchy processes, motivational theories, military.*

1. INTRODUCTION

Motivation is the way we convince others to do what we want or what they are supposed to do, influencing their morale and behavior. This interaction between the motivator and the subject is based simultaneously on the power or authority granted to the former to impose his/her will and on the latter's willingness to accept.

In order to achieve a goal, the motivator needs to use some tools which would induce the desired actions to the subject and, at the same time, would create an effect on the latter, proportional with the intensity of his desire. If we admit that, in

most circumstances, the motivator has a different goal, experience and background than his subordinate, than we might also acknowledge that their individual perception over actions or events and their emotional response to them might be different [1].

Military systems provide a controlled array of rewards to decision makers that they could use to motivate their subordinates, given their very clear authority to grant the rewards. Apart from this, there are no detailed recommendations on the precise reward that decision makers should use for a specific action, leaving room for personal interpretation based on individual perception. This proves

that, in fact, the rewarding system is a mix of settled rules and personal interpretation that could alter the intended efficiency of the motivational tools, for the better or for worse.

2. MILITARY MOTIVATIONAL TOOLS

Maslow's Hierarchy of Needs with its five stages shows the human beings' psychological needs during their lifetime, starting from the basic ones, up to self-fulfillment.



Figure 1. Maslow's Hierarchy Needs
Source: <http://chartdiagram.com/maslows-hierarchy-of-needs/>[2]

Within the military, the rewarding system should address as many of these stages as possible, if not all of them, to be an effective motivational tool.

Article 29 (3) of the Military Discipline Regulation, cited in Monitorul Oficial Part 1 no. 399 bis of July 2013 [3], lists the following formal military rewards: Thanks; Congratulations; Certificate of Merit; Quotation in Unit's Log; Decorations; Military Insignia and Awards; Engraved small arms; Bonuses in money or objects.

Using Maslow's hierarchy of needs, these incentives could be grouped as follows: Level 1 – Bonuses in money or objects; Level 3 – Thanks; Congratulations; Certificates of Merit; Quotation in Unit's Log; Level 4 – Engraved small arms Decorations,

Military Insignia and Awards.

A first observation is that, according to this classification, there are no incentives for level 2 – safety needs and level 5 – self-actualization. It could be said that while level 5 is the highest possible level that could be reached by an individual, level 2 is a basic need that requires to be fulfilled.

What is also interesting to notice is that according to the existing rules in which the rewards are offered, a battalion commander could use level 1 and 3 rewards, while a company or platoon commander could only use level 3 rewards. In other words, a battalion commander can motivate subordinates with money, as a short term reward (level 1), or he could use incentives to strengthen unit's cohesion (level 3).

As for level 4 rewards, Regiment, Brigade and Division Commanders could propose engraved small arms be awarded by Chiefs of Services, while the remaining could only be offered in accordance with the National Defense Ministry Order.



Figure 2. Military Motivational Tools and Maslow's Hierarchy

Although the regulation stipulates the authority granted to commanders at different management levels to grant rewards, there is no explicit direction which incentive to be awarded for

a specific action, leaving thus to the commanders' decision to choose among those available for them. Therefore, a rational deduction leads to the conclusion that the decision maker's perception plays an important role in making that choice.

The aim of this paper is to evaluate the relative rewards' importance as it is perceived by decision makers, using the Analytical Hierarchy Process method.

3. METHODOLOGY

Thomas Saaty [4] developed the Analytic Hierarchy Process (AHP) as a decision making method, using a structure of matrices to compare different criteria on a standard scale through computed priority vectors, whose values establish the magnitude of the selected alternatives.

In order to obtain this outcome, a hierarchy must be created. This includes categories and sub-categories which are compared two by two, in a so called "pairwise comparison", through a designed questionnaire filled in by a group of decision makers. Once completed, the answers turn into decision matrices and their eigenvalues and eigenvectors are calculated, revealing the numerical results associated with the perceived importance of the rewards.

Due to the implied items within the questionnaire derived from the number of rewards, two steps were performed: in the first run, the most important four perceived rewards were selected out of the total of eight; second run completed the research and offered the perceived order of the remaining rewards, with the hierarchy presented in Figure 3.

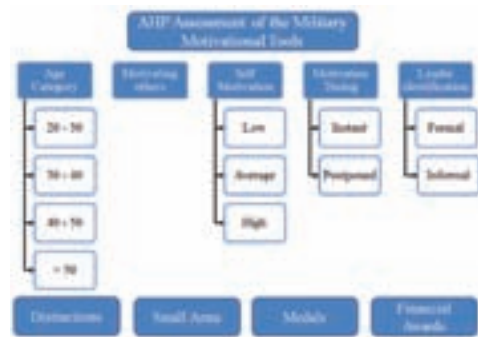


Figure 3. The Hierarchical Diagram

The criteria for the research were chosen from a less acknowledged perspective: the age of the decision makers; willingness of the decision makers to motivate others; self-motivation level of the decision makers; the time when the reward is awarded; and the correct identification of the leader.

As young officers have the same decision making responsibilities and offer rewards as the ones at the retirement age, it is important to understand if age influences their perception over the way they grant the rewards.

Another important consideration is the willingness of the decision makers to motivate others. Experience shows that different people relate to others in different ways, some of them expressing empathy, while others keeping coldness.

When rewarding, decision makers experience a disposition translated from the personal and working environment, impersonated as mood. How is our mood influencing our perception over the rewards and the way we make our choice?

From the timing perspective, some decision makers choose to award the rewards immediately, while others

choose to postpone the moment. From the decision makers' perspective, is this influencing their perception over the reward they choose?

In any organization there are well established empowered managers. It is also known that, behind the scene, there are influential individuals who are able to influence decisions. Is there any difference in decision makers' perspective, if the informal leaders are known and rewarded, instead of formal leaders?

After the criteria were set, the questionnaire was designed and a group of 17 decision makers from different echelons and with different ages filled in the answers individually. Their answers were translated into decision matrices and, through computations in a tailored Gauss program, and eigenvalues and eigenvectors for each decision maker were obtained.

4. NUMERICAL RESULTS

A number of 17 respondents, decision makers in some military organizations were asked to individually formulate pairwise their inclinations in terms of choice and intensity of preferences over the criteria, sub criteria and alternatives in the above formulated hierarchy. The synthesized priorities for the four alternatives were derived regardless the values, acceptable or not, for each of the the consistency indices of the decision matrices, as shown in Table 1.

For each respondent, the corresponding weight of importance was synthesized in accordance with the AHP standard procedure and reported on its associated line and on columns; for each reward were

computed the mean and the standard deviation for all respondents. Since every respondent is a decision maker, the standard deviation is interpreted as a measure of the degree of subjectivity in granting the correspondent reward. The soundness of the decision matrices derived as a result of the questionnaire and consequently, the validity of the final numerical answers is usually decided on the correspondent values for the consistency indices (CI) associated. The consistency indices for the derived decision matrices were very often unacceptably high. Therefore, a method for determining the closest consistent matrix was used and the algorithm indicated in Benitez & alii [5], proved to be the most promising one in terms of speed and accuracy of calculus.

For every respondent's decision matrix, the closest consistent matrix as in Benitez & alii (2011) was derived and, once again the aggregated priority vectors in the context of the above hierarchy were recalculated, as shown in Table 2.

Table no.1 Synthesized priorities for the alternatives as derived from the original decision matrices.

Alternatives	Financial Awards			
	A1	A2	A3	A4
Respondent 1	0.2400	0.1700	0.1048	0.4784
Respondent 2	0.2780	0.3314	0.1281	0.2814
Respondent 3	0.3077	0.1068	0.1909	0.3986
Respondent 4	0.0993	0.1333	0.2161	0.5514
Respondent 5	0.2860	0.2823	0.3567	0.0750
Respondent 6	0.2442	0.1108	0.1566	0.4884
Respondent 7	0.3952	0.1893	0.1307	0.2848
Respondent 8	0.1661	0.0768	0.2252	0.5320
Respondent 9	0.1997	0.2536	0.2606	0.2881
Respondent 10	0.1416	0.1402	0.0688	0.6494
Respondent 11	0.2639	0.1275	0.0530	0.5557
Respondent 12	0.0921	0.0571	0.1660	0.6848
Respondent 13	0.0877	0.1926	0.2002	0.5194
Respondent 14	0.1840	0.2322	0.3061	0.2877
Respondent 15	0.0999	0.0356	0.2251	0.6494
Respondent 16	0.0544	0.2107	0.2261	0.5088
Respondent 17	0.1256	0.1622	0.2407	0.4715
Mean	0.19037081	0.164721161	0.1915133	0.452993377
ST DEV	0.09509323	0.079838915	0.0882616	0.163109347

Table no.2 Synthesized priorities for the alternatives as derived from the closest decision matrices derived as in Benitez &alii (2011).

Respondent	Criteria			
	Distinctions	Small arms	Medals	Financial Awards
Alternatives	A1	A2	A3	A4
Respondent 1	0.2228	0.1526	0.1019	0.5224
Respondent 2	0.2534	0.3240	0.1365	0.2860
Respondent 3	0.2646	0.1083	0.2082	0.4191
Respondent 4	0.1021	0.1345	0.2103	0.5531
Respondent 5	0.3046	0.3027	0.3162	0.0766
Respondent 6	0.3434	0.1102	0.1574	0.4000
Respondent 7	0.3731	0.1723	0.1162	0.3384
Respondent 8	0.1670	0.0772	0.2260	0.5297
Respondent 9	0.1874	0.2225	0.1114	0.2787
Respondent 10	0.1437	0.1423	0.0692	0.6468
Respondent 11	0.2644	0.1282	0.0515	0.5538
Respondent 12	0.0887	0.0556	0.1590	0.6967
Respondent 13	0.0890	0.1811	0.2051	0.5249
Respondent 14	0.1897	0.2246	0.3005	0.2862
Respondent 15	0.0851	0.0357	0.2146	0.6646
Respondent 16	0.0954	0.2139	0.2287	0.5020
Respondent 17	0.1275	0.1654	0.2421	0.4649
Mean	0.18581523	0.16177876	0.1915865	0.46881955
ST DEV	0.08992144	0.07970562	0.0795366	0.16253643

What it can instantly be noticed by a comparative look at the two tables, is the fact there are no significant differences between the two estimates for the final alternatives, regardless the consistency of the involved decision matrices. This fact is due to the method applied to improve the consistency index, in correlation to the particular consistency indexes corresponding to the original decision matrices.

Yet, maybe the most interesting fact is that at high stakes, there is a high degree of subjectivity. To put it differently that means not only the highest value in the priority vectors, but also the highest standard deviation corresponding to the fourth alternative – financial rewards.

5. CONCLUSIONS

Designing a set of efficient motivational tools is often done by keeping in mind the essentials motivational theories, as well as the particular restrictions faced by the organization of interest. Although conceived and listed in an ascending, uniform order on the scale of the

desired motivation, the implicit perceptions of the individuals over these explicit motivational tools are sometimes disproportionate.

This paper intends to quantify the way decision makers perceive the importance of the rewards within a given rewarding system. A hierarchy was designed, with selected criteria and sub-criteria, having as alternatives the four main motivational rewards, determined through a prior similar process.

The pairwise comparisons were performed by a group of 17 experienced decision makers. Regardless the technical aspects connected with the consistency indices associated to the decision matrices aspect, the joint usage of the original decision matrices, as well as the improved CI computation version, revealed a disproportionate importance granted to financial rewards, in comparison to the other ones, followed by decorations, while getting engraved military small arms seems to be not so much appealing.

In other words, using the given criteria and sub-criteria, only the rewards of level 1 and level 4 motivate, which could lead to the conclusion that level 3 rewards, translated into team work, friendship and unit pride, are not perceived as attractive .

Nevertheless, it is very important for decision makers to assess the perceived importance of the existing rewards and understand their real practicality.

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LOGISTIC SUPPORT REQUIREMENTS IN MULTINATIONAL OPERATIONS

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The requirements for the logistic support in multinational operations are not totally different than those for classic operations, as we know them at the present moment. But what differentiates them for sure, is the multinational framework that incorporates the military actions, the multiculturalism of tactics, techniques and procedures by which NATO and non-NATO member states, that participate in the multinational operation, understand to provide the logistic support to their own troops, as well as the different roles accepted to be fulfilled by one country or another (Lead Nation for Logistics, Specialized Role Nation, Host Nation Support, etc).

Key words: *logistic support, requirements coordination, supply.*

The requirements for logistic support in multinational operations bring forward the managerial facet (organization and planning) of activities conducted by the planning and leadership bodies, in order to generate and equip the forces, as well as to provide for them a level of logistic support that allows them to sustain themselves in the theater of operations, for a specified period of time; subsequently, after the support system (support lines) has been realized, the forces will have their material and services needs filled, in accordance with the consumption rate and the individuals' needs.

From this point of view we want to underline that the requirements for logistic support highlight the capacity of logistic support bodies, to combine the capabilities of their own organization with those belonging to other member states and to the Host Nation Support, as well as to international non-governmental organizations and to local and international economic actors.

The requirements for logistic support in multinational operations take into account: the timely and

efficient use of economic actors; the detailed planning of logistic support; the continuity of logistic support; the coordination of logistic support planning with operational planning; the supply towards the front; the balance between combat forces and logistic forces; the distribution and allocation; the effective use of resources at hand; movement coordination and control; the provision of logistic reserves; the modular structure of the logistic support forces.

The timely and efficient use of economic actors represents one of the main requirements of logistic support in this type of operations, taking into account that these military actions are conducted faraway, and the troop contributing nations make big efforts to move not only their personnel and vehicles, but also the equipment and material stocks which are necessary to sustain the forces for a given period of time. From this point of view we consider that the terrain footprint of the specialized structures belonging to each national contingent (to multinational logistic structures, respectively), decreases or increases, depending on the identification of

international or local economic actors, which can take responsibility over some logistic demands and provide support for the whole range of operations.

Unlike the operations conducted on national territory, where suppliers have the necessary time to take note of the requirements forwarded by the troops (in order to reinitiate the processes and technologies for production, to establish the demands for raw materials, materials, production technologies and labor force), in multinational operations the international economic actors have to be informed well in advance (at the initial stages of force generation and logistic planning process), about the demands forwarded by the troops, the locations where these supply should be sent, the foresighted consumption rates, for the purpose of establishing the re-supply rates, etc.

Within this planning process, the Host Nation is involved, in order to present their support capabilities, especially in the field services domain, to allow the creation of a general picture about the multinational force's support capabilities.

The detailed planning of logistic support represents another defining requirement related to the way multinational forces are being sustained along the operations. It highlights the capacity of logistic planning and leadership bodies to create an appropriate database, to use the sources of information from the international security organizations (UN, NATO, EU), related to supply and contracting sources available in the member states, in the Host Nation, and also in the global procurement network. This way, by accessing all these sources, the management of logistic support is highlighted and the military supply-delivery chain is interconnected with the civil one. This connection will lead to reduced costs and efficiency in providing for the material and field

services demands, at the right moment, in the right place.

From this perspective, the bodies responsible with logistic planning and leadership at the level of the multinational force, have to obtain and clarify, for all functional domains of logistics, the information which is necessary to know the troop contributing nations' own capabilities, the capabilities of the organization itself, and also the capabilities which can be obtained at local level, or within the surrounding area of the theater of operations. These information which targets the supply sources, the demands for transportation assets, assembly areas for maintenance units and subunits, areas for the evacuation of damaged vehicles and equipment, places for the evacuation of wounded and sick personnel, the viability and security of communication routes, the way the strategic deployment and redeployment processes take place, and last but not least the factors that influence the operation, have to be used in an appropriate way for the decision making process to be conducted objectively.

The continuity of logistic support, viewed through the eyes of the military experts, represents a decisive element for the actions of those planning the multinational operation, including the establishment of objectives for military actions, and the end state of the operation. So, in our opinion, the logistic support of multinational operations imposes not only constraints but limitations also, some of them quite serious, depending on the nature of the operation, the environment, the concept of employment of logistic support execution structures, by both the Multinational Force Command and the tactical and operational level commanders. If at strategic level we can take into consideration some limitations of logistic support that might contribute to a limited decision of the force commander, related to the development of the strategic deployment/

redeployment process, at operational and tactical levels we take into consideration other constraints, related to the capacities of logistic structures that execute the necessary support, with impact on revision/re-dimensioning of combatant forces, on the establishment of missions, on the duration and rhythm of actions. The logistic support of operations at operational and tactical levels always influences the strategic level.

The coordination of logistic support planning with operational planning underlines once more the fact that the operations and the logistic support are being considered interdependent; they could not be analyzed separately, because the two domains have established a relation of complementarity of a high level of integration. For this reason and other more, the two domains have to be analyzed in their interdependency, along the planning process; the documents that result from the process, both the planning ones (the logistic support annex to the operations plan and those specific to some domains like maintenance, medical support, etc), and the management ones/ conduct of operation (the logistic support annex and the documents mentioned above, to the operations order) have to sustain the efforts of troops, to overlap the operations, to be integrated at the three levels of the military art.

In accordance with the aspects presented above, an important role is played by the leading structures from the multinational force HQ (Combined Joint 4/CJ4), which coordinates the logistic support at the theater of operations level, using subordinated structures like the Multinational Joint Logistic Centre/ MJLC (in case of a Combined Joint Task Force/CJTF), or the Joint Logistic Support Group/JLSG (for NATO Response Force); the latter can intervene to solve some requests that come from the troops, or to provide the transfer of the logistic support from an area of operations to another. At the same

time, entities like these, that coordinate the multinational logistic support have specific authority over other logistic support structures of a multinational character, like the Multinational Integrated Logistic Units/MILUs which are responsible for various functional domains of the logistic support (supply, transportation, engineer infrastructure for logistics, etc).

The supply towards the front comes to underline a very important principle of the approached domain, namely the common responsibility of the multinational force and troop contributing countries, for the logistic support of their own troops. In accordance with the already mentioned principle, the demand comes to bring forward the way the logistic system of a multinational force is established; it has to provide for the organization of material flows, from the higher echelon, to the lower echelon, using the "linear" variant or the "hub-spoke" variant. This way, the materials and services which are necessary for the combat troops are being provided by the known methods of pull and push from the supply bases towards the fighters. An aspect which is specific to multinational operations is the way a large part of these goods and services are being contracted locally, or within the areas surrounding the theater of operations. Another expression of the approached principle and stated demand, is given by the command and control authority over the logistic forces belonging to national contingents, which remains always, within the responsibility of national authorities. Usually, in the conduct of multinational operations, the combat structures are relieved from administrative problems, the responsibility going to the multinational force, the National Support Elements/ NSE of each national contingent and the National Command Authorities.

In our opinion, the supply towards the front has to be considered in an objective way, because it can lead to accumulation of stocks in excess, in some cases.

The balance between combat forces and logistic forces underlines another important characteristic of multinational operations, namely the necessity that each national force provides the logistic support structures in accordance with the size of the combat forces. This balance has to be noted and to result from the initial stages of the planning process, taking into account that each multinational operation has to be analyzed individually. In other words, there is no template in sizing logistic support, because each action of this type is singular and has to be approached in a distinct way. An aspect specific to the operations conducted lately is that the Multinational Force did not manage to deploy into the theaters of operations MJLC type structures, or MILU type structures. We add that the structures that should serve the second line of the logistic support (which is the responsibility of the multinational force) are missing, resulting in a more substantial effort to be undertaken by the NSEs. In all cases without exceptions, the logistic support concept has to be harmonized with the concept of operations, in order to avoid blockages or major disturbances in the provision of logistic support, that could not be surpassed in a rapid way.

Distribution and allocation represents one of the essential requirements of logistic support in multinational operations, being considered as closely related to the specific principles of supply/re-supply. From a different perspective, both distribution and allocation are extremely important within the resource planning process; there are many situations when due to various motives the operations result in consumption rates higher than the forecast ones, or higher than stocking capacities of logistic structures (the best suggestive example was the Iraqi war where due to the high offensive rhythm of the American forces, the logistic structures were not able to keep

the pace of advance, so the distribution and allocation did not work). For this reason, both distribution and allocation are procedures for the completion of resources (stocks) presenting a high degree of flexibility.

Talking about their significance, distribution stands for the provision of materials, based on the planning of resources which exists with the troops (taking as reference the consumption rates approved and noted in plans and operations orders – auto completion), while allocation provide the distribution of services, products and materials which are necessary to the troops, based upon their requests.

As a particular aspect of multinational operations, the above mentioned requirement highlights the concept of military operations and takes into consideration the dimension of forces that will be supported, the operational needs that should be reached, and, not in the least, the logistic support concept, overlapped with the concept of operations. Regarding our analysis, the most important elements of the logistic support concept, are those targeting the level of material stocks and the method of their re-supply, the viability of the supply-distribution flow and the considerations of a multinational nature, which targets the responsibilities of troop contributing countries (leading nation, specialized role nation, etc). We would like to highlight that sometimes the resources distributed or allocated to multinational forces are not enough, due to many reasons that go with the involvement of the troop contributing countries, and the resources of the international security organization, etc. Due to the above mentioned reasons, there might be fewer resources, so the allocations will be insufficient, in comparison with the quantities requested or forecast along the planning process.

The effective use of resources at hand demands from all planners of

a multinational operation to pay a special attention to the establishment of the level of resources needed for the logistic support, of the ways and methods for their re-supply, in order to provide the sustainment of troops in the theater of operations. For these reasons, when establishing the level of resources for logistic support, along the planning process, they have to take into consideration the costs of the operation and to determine if the proposed goals are sustainable and credible from the perspective of identified resources. At the same time, the establishment of responsibilities (leading nation, specialized role nation, etc), memoranda, technical agreements between troop contributing countries, or the accessing of logistic support from third parties, represent other ways and methods to reduce costs and place them in limits which are reasonable and accepted by all participants in the military action. Consistent with the above mentioned aspects, logistic support planners have to bear in mind as a must, that the way resources are being utilized, should be within the limits established by the commander of the multinational force, in the concept of operations.

The movement's coordination and control considers both the movement and transports which are to be executed, outside and inside the theater of operations. This requirement asks for the existence of some specialized structures, at the level of the multinational force/regional commands, which have to be able to complete these actions in accordance with the orders and dispositions of the multinational force commander. The above mentioned issues highlight the desire of multinational force level decision bodies, to avoid blockages in performing movement and transportation tasks, allowing for an efficient flow, related to the strategic deployment/redeployment process and to the rapid re-supply of material stocks

and services necessary to combat troops.

It is appreciated that by the introduction of specialized structures for the coordination of movement and transportation, like the one that exists at MJLC level (the movement and transportation coordination cell), it will be assured an appropriate level of coordination and control at the theater/area of operations level, fluidity and efficiency in the movement of combat forces, and finally a better performance of the resources supply/re-supply system.

The provision of logistic reserves brings forward the necessity of pre-positioning the quantities of materials needed by combat forces (outside the area/theater of operations, or inside them), so the inception of blockages in the supply process will be avoided. For this reason the logistic support, as well as the combat support represent some of the factors that are taken into consideration, with a strategic and operational impact over the success of the multinational operation. As we have presented above, in the case of the American offensive in Iraq, the logistic support was a quantifiable factor, in determining the impact over the rhythm of operation, in the same way the human resources strategic and operational reserves, are necessary to exploit the operational success, or to provide for the requirements which have not been forecast during the planning process.

The creation of logistic reserves before the operation is a compulsory aspect, because these reserves give the multinational force commander the possibility to intervene in support of combat forces and prevent the ignition of a phenomenon known in the logistic circle as logistic crisis.

The modular structure of the logistic support forces contributes to the assurance of freedom of movement at the level of multinational force HQ, so the decision making structure (CJ4) has the flexibility to solve various demands

from the troops, both following a chronological order of registration, and function of operational hierarchy and existing necessities in the theater of operations.

The above mentioned requirement contributes to the projection and deployment into the theater/area of operations of some logistic support structures that have a considerable capacity of deployment and action, similar to that of supported forces.

By abiding by this demand, both the logistic support planners from the international security organization/coalition of forces, and the troop contributing nations can generate an increased level of readiness for the multinational force, this way assuring the success of the mission success.

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DISCOURSE AWARENESS IN IMPROVING NON-NATIVE STUDENTS' ABILITY IN GENERIC WRITING

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This study explores the importance of teaching discourse patterns to non-native university students. I used particular discourse patterns in teaching generic writing to undergraduate students at the Gulf University for Science and Technology, GUST, in Kuwait. The assumption of this study was that undergraduate non-native students should be aware of the importance of discourse patterns in generic writing. This hidden tactic is not obvious unless consciously taught to them. To study the importance of generic patterns, I opted to teach discourse patterns that are used in newspaper editorials, the rationale of which was that students would grasp discourse patterns and apply them to their own writing. I chose two groups of students randomly, one of which was an experimental group and the second of which was a control group. I conducted a detailed analysis afterwards to examine the validity of my assumption. I taught the experimental group the chosen model of analysis, and instructed the control group to read sample editorials, and write their own editorials afterwards. The results of this experiment were substantial. Based on the level of compliance with the suggested format, triads, movements, and artifacts in newspaper editorials, students in the experimental group were evaluated on a scale of 0 to 10. The performance of the experimental group was above average, 75.3%, in comparison to the control group that complied quite poorly with the chosen model, < 30 %.

Key words: newspaper editorials, discourse patterns, discourse, exchange, triads.

1. INTRODUCTION

Teaching discourse awareness in EFL classroom is an important step towards improving teaching academic writing. Maybe one of the most acute setbacks today in writing methodologies is neglecting generic aspects of texts that cannot be taught without direct consciousness of generic aspects of text. Drawing non-native students' attention to the crucial impact of generic patterns in writing has yielded fruitful results in teaching English as a foreign language. Learning different textual patterns is important for any writer to know in order to further enhance his/her writing [1]. In

fact, learning what particular academic patterns to use when writing an article, for instance, is even considered intricate for non-native speakers of English [2]. ESP, English for specific purposes, has been the main arena for experimenting with generic writing. Most writing and genre researches have focused on seminal works for John Swale's Genre analysis: English in academic and research settings and Vijay Bhatia's Analyzing genre. In fact, there is a growing need for deliberate teaching of generic patterns in ESP. To further investigate the fruitfulness of deliberately teaching generic patterns in editorials, I conducted an experiment at GUST, Gulf University for Science and

Technology, trying to check the validity of the claim that discourse awareness is contributive to improving non-native students' ability in academic and journalistic writing. I chose two groups, an experimental group and a control group, in which I instructed the former and asked the latter to write their own editorials. My aim was to investigate whether my students would write better editorials if drilled in advance on generic editorial patterns. I chose this particular genre, because language in newspapers is very widespread today, and students come across this particular type of discourse very often.

2. BACKGROUND

Teachers and educators follow different methods and strategies in teaching writings. Therefore, many researches and experiments are conducted to find the best way of teaching and developing writing skills. In February 2012, Ahn and Hyejeong conducted an experiment that was implemented on middle-school-aged students in South Australia following a light weekly schedule for 10 weeks. It is called "Teaching Writing Skills Based on a Genre Approach to L2 Primary School Students" [3]. The action research was conducted in a wide-ranging class of backgrounds and abilities in a public school in the city. The focus was on improving report and essay writing which was done using scaffolding, a teaching and learning cycle of three stages based on an idea Vygotsky created [4]. Results were calculated according to a comparison between their writing pieces before the experiment and after 10 weeks. The students benefited by being able to recognize that writing is different for each 'communicative

purpose'; therefore, they could be more confident about their abilities and were encouraged to write more as a result. The ongoing examination of pedagogies and their uses has created trends that are discussed in *Teaching Students What They Already Know: Student Writers as Genre Theorists* by Jeanne Marie Rose [5] North American interest in generic writing shows it as a social interaction between students and how they use the language and specific word choices that they use employ daily. Students' awareness and knowledge about the topic they are writing are not truly reflected in their writings. Rose and Jeanne Marie in this paper indicated that writing production does not reflect perception although teachers usually encourage students to choose wisely when it comes to their writing choices. In other words, teachers tell their students to write about what they know or about what they are familiar with. In 2004, a paper by Carter, Michael, Ferzli, Miriam, Wiebe and Eric [6] studied the laboratory report of teaching genre to English first-language University in Biology labs by using Lab Write which is an online instructional material for teaching the lab report. The authors of "Teaching Genre to English First- Language Adults: A Study of the Laboratory Report" hypothesized that the treatment group would be more effective in learning the scientific concept of the lab and learning to apply scientific reasoning. The results of the lab reports of the Lab Write students were rated as significantly higher than those of the control group. A third hypothesis that students who were using Lab Write would develop a significantly more positive attitude towards writing lab reports was also supported. The results suggested that first-language adults can learn genre through explicit

teaching in a context of authentic use of the genre. Hence, many papers and experiments show that genres matter for students; for example, essays are used in classrooms and testing situations only. However, those who are majoring in empirical fields tend to write reports. In his article, Critical Discourse Analysis: Discourse Acquisition and Discourse Practices, Steve Price, from Monash University, Australia, has stated the following:

"An important concern of critical approaches to language and language learning is to go beyond simply describing conventions of language form and use to show the ways in which such conventions are tied to social relations of power. "Critical approaches differ from noncritical approaches in not just describing discursive practices, but in showing how discourse is shaped by relations of power and ideologies, and the constructive effects discourse has upon social identities, social relations and systems of knowledge and belief" (Fairclough, 1992b, p. 12). This awareness of the ideological effects of discourse that critical analysis can bring about can then, it is argued, lead to changes in discourse practices that will result in greater social equality and justice.[7]

Furthermore, researchers have observed that students' ability to perform in composition courses is predicated by types of assessment that teachers are using; for instance, in-class tests, online tests and exit exams. Tony Silva and Colleen Brice [8] have noted in their research on teaching writing that the most interesting aspect in composition relates to the contexts in which it is done; for example, first language versus second language. Then, the writing proficiency of students is not related to the genres according to Silva and Brice,

who conducted a research on Second Language writing in 2004. They believe that the best method of testing students' writing abilities is timed, direct essay tests because they seriously predict the abilities of students especially ESL students to write under natural conditions. The situation is different when it comes to native speakers because native speakers learn their language through making generalizations and applying them. Therefore, Susan Losee Nunan in 2005 [9] has shown in her studies that explaining grammar rules provides students with tools for building complex thoughts and expressing themselves more elaborately. In other words, Nunan conducted an experiment on her high school students that has proven that grammar instructions are really significant in improving writing skills since there is a transfer from grammar exercises to writing. To sum up, researchers and language specialists have two main different opinions about teaching writing.

3. THE CONCEPT OF TRIAD

Adriana Bolivar [10] introduces for the first time the concept of triad in the discourse of editorials. This is a three-element minimal interactional unit. This is analogous to what Sinclair and Coulthard [11], call exchange, which is also a three-element unit: an initiation (I), a response (R), and a follow-up (F). The same method was also investigated in spoken discourse by Burton who thinks that not all the three previous elements are found in classroom discourse [12].

Example of Discourse Exchange:

(I) Can anyone have a guess, a shot at that one?

(R) Cleopatra

(F) Cleopatra. Good girl. She was

the most famous queen, wasn't she, Cleopatra of the Nile.

Based on this idea, Bolivar suggests a three-element unit which she calls a triad: lead (L), follow (F), and a valuate (V). A complete turn that comprises of three paragraphs in an editorial forms an LFV structure. Three consecutive turns form a move, and three moves form an artifact. This hierarchical model is created at the end of the rank scale. The triads can be classified according to position and function into Situation(S), Development (D), and Recommendation(R). S triads are presented in initial positions and have the function of referring to an event and evaluating it. The first triad in an editorial refers to the current event being evaluated, while the S triads that appear later refer back to the main event, although they may introduce other related events. D triads occur in the medial position, after S type, and their function is to develop the reference to and the evaluation of the event.

- R triads occupy final position in the sequence and the function is to close the reference and the evaluation of the event introduced by the S triad that initiates the sequence [10].

- It is clear then that editorials constitute a particular genre that has its own set of internal interactional rules to convey meaning to its readers.

- The LFV structure is not sternly fixed. Some turns can have LF only with no valuates at the end. However, this should affect the integrity of the editorial.

I introduced my students in the experimental group to this generic pattern and have asked them to write their own editorials. My aim behind this attempt was to check the validity of the claim that teaching discourse awareness can yield in substantial results in writing editorials. Results of this study showed

that my students in the experimental group surpassed by far their colleagues in the control group. They grasped the triadic three-element pattern of editorials properly and have applied that on their own editorials. The disparity between the two groups was amazing, which leaves one without any glimpse of doubt that teaching discourse awareness can save our students and us, as educators, time and effort in the classroom. Students will be more confident of what is required of them instead of leaving them without guidance as to what they should write or how to abide by the parameters of a particular genre of writing.

Based on the level of compliance to the discussed format in writing an editorial, students in the experimental group were evaluated on a scale of 0 to 10 accordingly:

1 – 2: Very poor compliance to the model and poor language skill.

2 – 4: Missing Triads, average language skill.

4 – 6: Misplaced Triads, good language skill.

6 – 8: Scrambled Triads, good language skill.

8 – 10: Good compliance to format and excellent language skill.

For the Experimental Group of 15 members, Table no.1 shows the tally for each category.

Table no.1 Tally by category

Category	No. of entries	Averages
Category 0-2	0	10
Category 2-4	0	30
Category 4-6	3	50
Category 6-8	5	70
Category 8-10	7	90
Total average performance: 75.30%		

The table shows that the average

performance of the experimental group is above average as compared to the control group which has, quite poorly, complied with the discussed model.

- 0 is the number of people (entries) this number will be multiplied by 10 - the value assigned to this category in order to evaluate the average percentage

- It is calculated by the following: $(0*10)+(0*30)+(3*50)+(5*70)+(7*90)$

- All is divided by 15 - the number of assignments

- The second category lies between 2 and 4, so the average weight assigned to this slot will be 30%, and we have none falling in this category (described above in the file)

- 30 lies half - way between 20 and 40, and 50 lies half way between 40 and 60 ... and so on as the below figure shows:

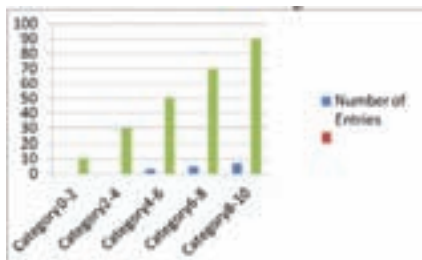


Figure 1. Performance of experimental groups

Based upon the previous figure, I have also conducted an ANOVA analysis using SPSS, a statistical software, to examine the validity of my numbers. I have come with the following results.

SPSS Analysis:

Category 0-2 = category 1

Category 2-4= category 2 ... so on.

Table no. 2 Student * cat_cat Crosstabulation

Count	cat_cat			Total
	3.00	4.00	5.00	
1	0	0	1	1
2	0	0	1	1
3	0	0	1	1
4	0	0	1	1
5	1	0	0	1
6	1	0	0	1
7	1	0	0	1
student 8	0	1	0	1
9	0	1	0	1
10	0	1	0	1
11	0	1	0	1
12	0	1	0	1
13	0	0	1	1
14	0	0	1	1
15	0	0	1	1
Total	3	5	7	15

Table no.3 ANOVA analysis

ANOVA					
student	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.286	2	17.143	.837	.457
Within Groups	245.714	12	20.476		
Total	280.000	14			

a. 45 cells (100.0%) have expected count less than 5. The minimum expected count is .20.

Symmetric Measures				
		Value	Asymp. Sig. Exact	Asymp. Sig.
Interval by Interval	Pearson's R	.880	.245	.344
Ordinal by Ordinal	Spearman Correlation	.880	.214	.100%
N of Valid Cases		15		

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.

As one can observe, the sample selection relies on categories 3 and 5. One also observes that the sample has a positive slope starting from 3 to 5. As per ANOVA results, there is a significant correlation between number of students and categories variables. Therefore,

one concludes that compliance with the suggested frame of analysis has a strong correlation with language mastery.

3.1. Samples of written editorials

The following are two samples of a properly written editorial by a student in the experimental group and another editorial written by a student in the control group.

Sample 1 (Experimental Group)

Women's Political Rights in Kuwait

(L) Kuwait has for long been called 'The Pearl of The Arabian Gulf',. Most countries used to refer to Kuwait as The Pearl thanks to the many exceptional services and life style led by the Kuwaitis.

(F) The other pearl that I want to talk about in this editorial is the woman. Although women are supposed to be the pearls of our societies, they are dissatisfied with their political situation. One of the most dissatisfactory elements is enjoying their political rights. In The Middle East in general, and in the Gulf countries in particular, many women stand up together to call for their political rights. In Kuwait, women tried repeatedly to obtain their rights, and to enjoy them as their fellow men do. For many years, their request had been rejected by the government and by the parliament.

(V) It was not fair that women in Kuwait could not have their rights like men. Sometimes, one thinks that it is unfair. Women have the right to air their opinion and to be part of the most important democratic activity in our country, which is parliamentary election. Kuwait is a democratic country, and in Kuwait we believe that everyone should say his or her opinion loudly and proudly without any fear. Nothing was wrong with the idea that women should enjoy

their political rights as such become important members in their country.

"First Triad"

(L) Women political rights became one of the most important issues here in Kuwait, and many TV and radio programs discussed it for hours. Newspapers in started to talk about this issue in details. The whole idea became Kuwait's number one subject and everyone talked about it day and night.

(F) Although many people in Kuwait agreed that women should get their political rights, religious men and parliaments refused it and tried so hard to stop everyone from talking about it. Women in Kuwait are really clever; they carry degrees from many popular universities around the world. We have many women who carry a PHD degree, and they are qualified to represent the people in the parliament.

(V) I loved the way how women in Kuwait stand next to each other to defend their rights against everyone. In was nice seeing the women in our country really brave and powerful. Managers, professors, and business women, these are some of the most popular jobs that women in Kuwait are working in. We have to give the women a chance to decide and to be a part of the elections especially that they live in the most democratic country in the Gulf.

"Second Triad"

(L) In 2005, the women political rights in Kuwait were finally approved. It was a democratic ceremony all over the country. Newspapers headlines were "Congratulations", "All The Way to The Parliament", and "They got it". It was a huge step for the women in Kuwait, and they were really ready to show everyone that they deserve to get their rights.

(F) Sheikh Jabber Al Ahmad Al Subah, Kuwait's president was happy with the decision, and he prepared a small speech to the women in Kuwait to congratulate them and to encourage them to be always together. Every single place in Kuwait was celebrating in its own way. Although there were many unhappy people, the majority was celebrating this day in Kuwait.

(V) It was really good to know that we are living in a democratic country. Now, Kuwait is the first country in Gulf who gave the women their political rights, and that point really helped our country to be one of the most respectful countries in Gulf.

“Third Triad”. One Movement

(L) After getting their rights, women started to participate in any political activity happens in the country like seminars, attending the parliament, and doing interviews about politic. Because they worked hard to improve their image in front of everyone in Kuwait, Dr Masouma Almubarak became the first female minister in Kuwait's history in 2006. After that amazing news, women in Kuwait believed in themselves more than ever, and they were really proud of what they've done. Now, women in Kuwait are the first women in Gulf who got their political rights, and to be a part of the country's government.

(F) Women's power became stronger every day in Kuwait, and the religious men didn't like that fact. Many problems happened in the parliament caused by these men, but they solved them quickly. As a result of a woman entering the parliament, many others started to think that it is the right time to them to go through elections. In 2007, women participated in elections, not by voting only, but by asking people to vote

for them too. Unfortunately, no woman wins on that election. In 2008, they tried again, by entering the elections besides the men. Eventually, four women won the elections, and they are, Dr Masouma Al Mubarak, Dr Aseel Al Awadhi, Dr Rolla Dashti, and Dr Salwa Al Jasser.

(V) I was really happy with the results. I think that finally we can know how women can be efficient in our country. They deserved the chance to prove to everyone that they really can do something and they can represent all the people in parliament.

“First Triad”

(L) Four women entered Kuwait's parliament for the first time in Kuwait's history. Each one of these four women is qualified to represent the people. Many problems happened when they entered the parliament for the first time, specially that two of them don't wear a scarf on their head and they are not covering it with anything. The good thing is that no one gives it a big deal, and by time everyone accepted the idea.

(F) Everyone in Kuwait was really excited to meet these women. They became an idol to many girls in Kuwait. Being a part of the parliament in our country is the biggest step to women in their political rights journey. All the people in Kuwait started to look at these women as if they were heroes, and actually they are in their eyes. Who are they? Where did they study? What are their degrees? All these questions started to pop into the people's mind. Although they knew some information about them, otherwise they wouldn't vote to them, people were interested to know more about each one of them.

(V) I was honored to interview two of them. They were really nice, polite, and really well-educated. When you

sit with them u feel how interesting personality they has. Dr Aseel Al Awadhi and Dr Rolla Dashti were my guests. I interviewed one of them by phone and the other one personally, and I was really happy to her.

“Second Triad”

(L) First, let me introduce her to you. Dr Aseel Al Awadhi, she was born in Kuwait in 1969, she is 40 years old. She graduated from Kuwait University with bachelor's degree in philosophy in 1993. She studied Kuwait politics as a minor study during her summer courses. Also, she has a PHD and Masters degree in political philosophy from Texas University in USA in 2006. Moreover, she has an amazing personality and she really likes her family.

(F) When Dr Aseel participated in the elections, she was in the most popular list in Kuwait, and her name was next to the most famous parliament men who have won the election more than three times. Although the powerful names, she got the second place with more than four thousand vote. She was happy when I asked her about her feeling when she heard the results. She answered with a big smile saying that it was the best moment in her whole life. When I asked her about what does she think of women in Kuwait? She answered with self confident and said; they are the most powerful women not only in Gulf, but also in the Middle East.

(V) Dr Aseel was really nice and a polite woman and she have a lot to give to the women in Kuwait. She said that the women in our country are clever women, but they only need a chance to show everyone what they can do. Her believing in women was amazing, and I respected her more than ever after meeting her. Dr Aseel is one of the two

women who have been attacked from the religious men in the parliament because of not wearing “Hejab”, and after meeting her, I know that she knows exactly to stop this problem forever.

“Third Triad”. Second Movement

(L) Another amazing woman who really took the women rights to another level and won the election is Dr Rolla Dashti. When you listen to her name you will find out that she is the daughter of the parliament man that used to win the elections before his death, MR Abdullah Dashti. She has a PHD on Population Economics from Johns Hopkins University in USA. Also, Financial Times magazine choose her as one of the most popular 20 business women in Middle East. Moreover, she had been chosen as one of the most 50 powerful Arabian women, according to her official website. Dr Rolla is one amazing woman who has a great personality with an amazing economic mind. While I was talking to her, I felt how close she is to her family, and she always remembers her father as her role model in life. When I asked her about women political rights in Kuwait? She answered me by mentioning that it is the best thing to every single woman in Kuwait.

(F) Dr Rolla was against other women in the elections, but thus point didn't affect her. People in Kuwait think that Rolla Dashti is a name that should enter the parliament, and they were ready to help her to accomplish that mission. When I asked her about her feeling when she won? She said that it was a happy night and she remembered what an old woman told her that day, and I asked her to tell me did she told you and you couldn't forget until today? She said “I am comfortable now because you are representing us in the parliament”, and

this sentence really meant a lot to me.

(V) After talking to Dr Rolla on phone, I realized that she is an open minded woman who really cares about women rights in Kuwait. She really likes what she do, and she is ready to do whatever it takes to help men and women in Kuwait as much as she can. Dr Rolla Dashti is the other woman besides Dr Aseel Al Awadhi who are attacked in the parliament because of not wearing the Hejab, and when I asked her about that point, her answer was; let them say what they want, we are here to talk about people needs, not what to wear or not.

“First Triad”

(L) Having four women in the parliament really caused many problems in the society. The most important problem is the Hejab problem, and it is still going on in the parliament. Another problem is that the people are expecting too much from the women in the parliament and they are not giving them the right chance to prove themselves politic.

(F) When you sit in a gathering with your friends, try to ask them about their opinion of the four women who entered the parliament, and listen to the shocking answers. One of the unforgettable answers is that the women are taking the whole idea of entering the parliament only for money. Unfortunately, many people think that they can't trust the women in the parliament because they didn't achieve anything until now. The problem here is that no one can do anything with five months, so it's unfair to blame the four amazing women who worked hard to enter the parliament.

(V) Give them a chance; this is my advice to everyone. When I met two of these respectful women, I believed in their thoughts, and their intention of taking Kuwait to a new level. If we want

to judge them, then we have to give them enough time to do what is on their plan list. Let's see, then we can judge.

“Second Triad”

(L) For many years women in Kuwait tried to really hard to get their political rights. They participated in the elections first only by voting the men who are going to enter the parliament. After few years, one of Kuwait women haired as a minister in the government, and it was a big step for women in Kuwait. In 2008, four women won the elections and entered the parliament for the first time in Kuwait's history.

(F) People in Kuwait agreed to change the history by voting to women in the elections. As we all know that each citizen has four names to vote, and they chose a woman to be one of these four names. It was the new generation who helped the women to win, boys and girls aged from 21 to 30 years old who voted in a new way by supporting the women to enter the parliament.

(V) I believe in women political rights in Kuwait, and I was with it from the beginning. In Kuwait, there are many brilliant women who can take our country to a new level, and to achieve things that no one could achieve before them. As I mentioned before that all what women need in our country is a chance to see what they have. We gave them their political rights, and now we have to give them the chance to see what they can do with it.

“Third Triad”. Third Movement. One Artifact

Sample 2 (Control Group) The Political Rights of Women in Kuwait

Kuwaiti women struggle to get their political rights that have been proven

“theoretically”, when the council of the nation decided it on May, 16, 2005. Also, it has been proofed “practically” because of the election results on May, 16, 2009, when four women’s reached the council of the nation. The entire observer in Kuwait relates this step, to the open mind of the Kuwaiti society. That they break all the links between the men’s and women’s, and there is no different between them. Although, there are a lot of people confused with these political rights. But, the Kuwaiti families do not pay attention to these confusions, because the women proofed her ability to guide a variety of hard positions. So, we can say that this article is a challenge to break all the rules that against the women political rights.

Although there are a lot of people confused with these political rights. But, the Kuwaiti families do not pay attention to these confusions, because the women proofed her ability to guide a variety of hard positions. So, we can say that this article is a challenge to break all the rules that against the women political rights.

Although women work hard to get all their rights, men also have to help women achieve them. Because, if the woman cares about her rights and the men do not, there will be a fake cultural awareness in our society. Also, we should not stick on our opinion and do not accept any new idea that may change our life. As a result, any effort will not be in our consideration.

Men and women have equal rights, they should be given the chance to prove themselves. In addition, in lots of countries, some people have a wrong explanation of women’s role in society. They think that she should not dream beyond her cleaning tools and kitchen.

And they relate all the political rights to the men’s only. Also, they listed all their

reasons of this prohibition under some religious thoughts. But, sure, we have to respect our religion but by a reasonable way. In order, to give the women her full rights, and sure she is aware of her red lines that she should not cross. And as we know that the woman is the sister, mother, daughter, and grandmother. So, she really plays an important role in the society, and we cannot close our eyes from this fact.

3.2. Analysis

In the experimental sample, one observes that the first paragraph is used to initiate the stage for the student’s argument in the essay. This leading paragraph is followed by the second paragraph which appraises the first one by showing the reasoning behind the first paragraph’s standpoint. Showing connection between the two paragraphs is maintained by the word “pearl” characterizing both Kuwait and Kuwaiti women. This comparison is further supported by the valuate paragraph which closes the first unit of this editorial and generally assesses the student’s standpoint. This generic technique is successfully applied by the student to lay the cornerstone for his editorial to develop logically and around the main lines designated by the first triad. According to Bolivar, “the valuate ends the smallest communicative cycle with an evaluation” [10]. The first triad is called the content triad because it talks about the main argument that the editor wants to develop further. The student is aware of the importance of creating the content triad in this systematic way, which helped him create this effective triad.

Tracing the second triad, one will start observing that the student is shifting into the second level of the generic hierarchy. He has started in

generically connecting the second triad by developing the initial idea put forth in the first triad. This developmental style gives the way for readers to interact with the editor by following the steps that lead to combine discourse elements logically. Thus, the second paragraph is called a development triad. This ideational development of the argument creates not only a logical chain of connections, but also a discourse chain of expatiation that leads to a better negotiation with the readers. The third triad used by the student is meant to further recommend the ideas presented and supported in the development triad. To put it in a nutshell, the student is totally aware of the fact that in order to negotiate meaning with his readers effectively, he should create discourse triads that strongly support his arguments in this editorial. Kuwait is the pearl of the Gulf and Kuwaiti women are pearls too. This analogy is further developed in the second triad. Then the very idea is further recommended and backed in the third triad. This structural trio has created the first movement, according to Bolivar, in this editorial. This structural buildup of editorials satisfies readers' expectations that are for the most part prospective. Readers are always anticipating what the editor is going to mention in following sentences. In the same manner of writing, the student goes on to create two more movements to connect them strongly with the first movement. In this way, a strong trio of discourse movements is connected to create an artifact. Students in the experimental group succeeded in deliberately applying generic rules that helped them anchor their readers' attention. This awareness is a strong guarantor of a strong message that could strongly persuade the intended audience.

If I analyze the control group

sample, it is evident that the student's comprehension of the assigned editorials that she read was not enough to help her grasp the generic aspects of written editorials. She has simply thought that an editorial is an essay written by a senior person in a newspaper, which is clear in her sample editorial. The essay format of her editorial does not reflect a convincing message to the reader. One finds that the introductory paragraph is too loose, in the sense that it does not initiate the main idea of the editorial properly, and its main argument is not clear. The second paragraph directly argues what was stated in the first paragraph without assigning it any logical role. The third paragraph is another extension of the second paragraph and fails to develop the student's idea correctly.

4. CONCLUSION

I have shown in this paper the importance of teaching generic and discourse awareness to university students. Relying solely on intuition and comprehension is not enough, especially for non-native students of English, to understand the mechanism of writing editorials in English. This behavioral aspect of English writing should be deliberately taught to university students. The results of my study show that students in the experimental group whom I drilled on using generic patterning in writing editorials had a better grip on creating more effective editorials. They have even become better negotiators of textual meaning thanks to consciously and effectively using generic patterns. On the one hand, I strongly recommend using generic awareness in teaching writing for specific purposes. Every single field of study or pattern of writing epitomizes a particular pattern

of human behavior which should be deliberately studied and analyzed. On the other hand, I strongly disagree with those intuitive writing methods that rely primarily on random repetition and trial and error. As long as writing is a form of communicative behavior, one must develop frameworks and techniques that reflect this important feature of human communicative interaction.

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THE ROLE OF THE SOCIAL MEDIATOR WITHIN THE DISABILITY EMPLOYMENT SUPPORT SYSTEM

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For people with disabilities, to find a way to improve life quality by having a job and by developing independent living skills is a “sine qua non” condition for their social integration. The social mediator working within a disability employment support system facilitates the logistic implementation of a viable and plausible program, which can identify, and maintain a workplace for people with disabilities, and acts as a motivational guarantee of these persons’ chance for a better life while also providing life lessons to all of us. Hence, the major role of the social mediator is to develop a new cognitive structure of communication for disabled people so that they can act as our equals and not as marginalized human beings.

Key words: *acceptance, motivation, adaptation, social mediator, disabled people.*

We live in a period in which social and communication metamorphosis acquires new dimensions which, in time, shape a certain way of perceiving and evaluating the cognitive evolution of human beings [1]. As a result, the individual as a communicator and community member has felt an urgent need to find a third party, that is the third person to intercede in order to negotiate an agreement and/or action with.

Thus, the definitions provided by the new universal dictionary of the Romanian language (2007) [2]: a) mediation (mediere) = act of mediation and its outcome; b) mediation (mediație) = official intervention of a person for resolving a dispute peacefully, a conflict; = arbitration; c) mediator (mediator) = person who makes an act of mediation; intermediary, determine us as specialists to take into account the following dimensions and

variables when establishing the role of the mediator: the target audience, the social scene and sequence of steps to address the needs of the direct beneficiaries.

One particular quality of the social mediator is to engage into disability employment support systems by bringing together the specialists and direct beneficiaries. Thus, the role of the mediator is to give the opportunity for success in a field where attending a normal life can be truly a chance. Therefore, the theoretical anchoring of this article is into identity of the social mediator and its delineation.

We are accustomed to the mediator as a settler of conflicts and harmonizer of contradictions concerning problems between people, and hence to the following professional scripts: a) listener to both versions but without any right to be judgmental about who is right or not; b) creator of an atmosphere

into which those involved in the conflict, can express their feelings and interests; c) facilitator of communication between parties in order to allow those in conflict try to resolve the problems together [3].

All of the above underline the part of mediation as a process of assuring the transition from the individual to the collective by starting from the mediation of feelings, attitudes and cognitive-behavioral conduct.

Therefore, the scope and area of influence of the social mediator are framed within this context and within the frame of the three main mediation processes relating to a) consensus; b) private character and mutual trust; c) the dominance of the interests and needs of the beneficiary. However, the specificity of the role of this professional is rendered by the variables of working with disability employment support systems.

The appearance of the social mediator in within communities is welcomed especially from the point of view of the rights to life, work, freedom, etc. leading in fact to the inclusion of persons with disabilities in society, proving that they are entitled to everything all other individuals.

With a view to all of the above, the social mediator will be the integrator of the needs expressed by both the prospective employee (beneficiary) and the prospective employer, since the parties involved in the process demand: a) knowledge of available jobs; b) direct knowledge of the job; c) identification of potential beneficiaries; d) psychopedagogical training of the employer and consequently the shaping of an attitude of acceptance as far

as disabled beneficiaries with working potential are concerned; e) maintaining relationships of trust, respect and understanding with the employer.

The social mediator needs to be willing to analyze the workplace, so that it proves appropriate to the disabled person. Hence, the mediator will establish: a) the circumstantial identity routine; b) the harmful factors; c) the work environment and relations; d) the ways of learning specific job activities; e) the vocational profile; f) the process of assuring person/workplace fit; g) the type of abilities needed for work; h) work safety training. As a result of these responsibilities, the mediator needs to undertake negotiations and discussions with the business manager, the team leader, but also with future co-workers targeting especially the impact of the new environment on the recipient (person with disabilities) in terms of adaptability.

Along with the aspects previously mentioned employment mediation is the point on which employment is based, therefore employment support for the disabled can be conducted where: a) companies already have some economic power; b) there is workplace safety; c) all legal requirements are met, bearing in mind that employment should build on inclusion; choosing the profession of the assisted person; creation of a context for career development, social responsibility expressed as cooperation and consensus between the the two parties.

The monitoring of the assisted person is made by a specialist in employment support systems and

begins from the second day of work, which leads to motivational guidance that will lead in time to personal autonomy. The mediator's ability to make a difference through the monitoring stage is highly dependent on the ability of a recipient to adapt. In this respect, monitoring can be done [3] a) personally; b) by telephone; c) involving others (employer, team leader, colleagues, administrative staff, specialists). All of the above contribute to job stability, safety and success in having and maintaining a job for a long period of time.

With a view to all this, the social mediator must: a) thoroughly prepare to meet employer's expectations and manage to convince the latter to accept people with disabilities; b) have persuasive power to remove stereotypes and preconceptions about people with disabilities; c) to get the attention of the other party; d) highlight the qualities of the people (s)he supports; e) have the information needed and of relevance to both the employer and employee; f) be honest with both the employer and the employee; g) prove his/her professionalism coupled with fairness, responsibility, perseverance, concern, involvement and humanity.

In order to record success for the benefit of both employer and employee it takes teamwork, defined in this case, by a multidisciplinary identity. Thus, the organization employing the disabled can become social unit that succeeds in motivating the former in using his/her competence and becoming useful, by creating in time a personal autonomy grafted on improving the life quality and linking to those to which it relates and beyond.

Also, it is necessary that in this social approach all aspects of the subject's family are taken into account since these can act as catalyst for the disabled determination, development and awareness that independent living skills are their real chance of being "in the city and not outside the city". In this context, the family must be: a) better informed about the chances of a viable insertion; b) involved and more consistent in providing a real support for professional integration of one of its members.

In conclusion, the social mediator's role in facilitating disability employment support is an opportunity to find and maintain a job on the open labor market, transforming the beneficiary, from a passive and dependent member into an independent person with a partial capacity to control life, and hence being able to contribute to a society whose citizens are not dependent on social services field and can gain autonomy, ensuring a substantial increase in their quality of life.

Under these auspices, we believe that the availability of people with disabilities to find a job through the social mediator is the guarantee of equal opportunity for all. Consequently, the work of integration is the most powerful way of personal development and harmonization, and eventually of shaping individual perception over the disabled as as human beings and not mere objects. That actually involves a more responsible and motivational behavior at society/community level which allows for identity delineation of both the social mediator and of the people (s)he supports.

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A RELATIONAL ANALYSIS OF CORPORATE GOVERNANCE

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One of the realities brought forward by the financial crisis is that the corporate Governance, based until now mainly on self-regulation, has not been as effective as possible. A better management of organizations is important not only in order to reduce the possibility of occurrence of a new crisis in the future, but also for organizations to be more competitive. Currently we do not have a definition of corporate governance that is unanimously accepted. At global level, there are a variety of definitions for this term, depending on national, cultural or legislative characteristics. In this article we present the concept of corporate governance as being a complex process occurring at the level of the management of the organization, which integrates control, risk management and internal audit in a formula that is meant to determine the level of performance for the organizational achievements.

Key words: *governance; corporate governance; best practices; management; internal audit; risk management; internal control.*

1. CORPORATE GOVERNANCE: CONCEPTUAL DELIMITATIONS

The term “governance” is a general concept that is associated with contemporary social sciences, especially economy (corporate governance) and social policies (public governance) with reference to the economic and political behavior of organizations in relation with the decision making, executive and legal process [11], [19].

The concept of corporate governance emerged and developed during the last century and it was influenced in turn by economic environments based on family property, bank capital, institutional investors or anonymous societies, environments which were stirred by the great scandals that happened in time [10], [20].

In our days, the concept of corporate governance is related with the process of adaptation to the modern economy

requirements, to the more obvious globalization of social life and at the same time to the necessity to inform investors and the third parties interested in the activity of companies [14].

Initially, the term “governance” was used in the management of colonial territories, being gradually adopted by the management of national institutions (e.g., banks), but also of public and commercial organizations.

Later on, the term “corporate governance” was adopted, being first applied to organizations with commercial activities, and it gradually made its way to the public sector. The management on the basis of those principles can bring more value with regard to the interests of the tax payers and of the general public, who have the right to know that the public institutions are well managed in their activity of offering public services financed by public funds [11].

In order to conceptually understand the notion of corporate governance, we continue by emphasizing a number of relevant definitions. Thus, corporate governance represents [11]:

- “The system through which the companies are managed and checked” (Adrian Cadbury, 1992).

- “The ways through which we equally make sure that long term objectives and strategic plans are set, but also that the management and management structures adequate to reaching these objectives exist, making sure at the same time that the structure functions with the purpose to maintain the integrity, reputation and accountability of the organizations in front of its main electors” (National Association of Corporate Managers, USA).

- “... a combination of processes and structures implemented by the council in order to inform, manage, guide and monitor the activities of the organization with the purpose to reach its objectives” (the Institute of Internal Auditors).

The purpose of corporate governance is depicted in Figure 1.



Figure 1. The purpose of corporate governance [8]

The concept of corporate governance (referred in the International Standards of internal audit) emphasizes the management of the entire organization as a whole by accepting all its internal components, which function together, but which in the end will be integrated in the management through the implementation of the risk management within the organization, as well as of the financial management and the internal

control, including the internal audit [6; 22]. Thus, it results that the internal auditor helps an organization reach its objectives by making systematic and methodical recommendations in relation with the evaluation and improvement of risk management, control and governance processes efficiency.

The notion of “corporate” refers to the “entire organization,” taking into consideration all its internal components, integrated in a single structure; the notion of “governance” emphasizes a process within the organization that assures its guidance and control. Consequently, by logically adding those two words, it results the phrase “Corporate Governance” [11].

At the same time, the current practical tendencies envisage the management of the organization according to the principles of corporate governance. To this end, the concept requires a solid and efficient supervision of the way in which it is carried out, led, controlled and managed in order to protect the functions of the organization / institution [10].

At national level, the concept of governance is defined as being the “Ensemble of processes and structures implemented by the management with the purpose to inform, guide, manage and monitor the activities of the public entity toward reaching its objectives” [1].

At European Union’s level, in order to strengthen and develop the applicability of Corporate governance, the EU Commission launched two guides in this field, referring to the rights of the investors. They were elaborated within the Action Plan adopted in December 2012 regarding the European legislation that refers to companies - European company law and corporate governance - a modern legal framework for more engaged shareholders and sustainable companies [21].

The notion of “Corporate Governance of public enterprises” is defined in another regulation that has recently come into force in our country, as the “Ensemble of rules that governs the system of management and control within such a public entity that manufactures goods

or offers services, the relations between the superior public authority and the components of the public enterprise, between the management and supervision board, managers, stakeholders and other persons interested” [3].

The legislative framework that guarantees the objectivity and transparency in the selection of the management and of the members of the management bodies is the Emergency ordinance of the Government no. 109/2011 (with later modifications) regarding the corporate governance of public enterprises [2], [3]. The provisions of this emergency ordinance apply to the autonomous enterprises established by the state or by a territorial unit, to national companies, to companies in which the state or a territorial unit is the only stockholder, the major stockholder or which they control, as well as to limited companies in which one or more of the public enterprises already mentioned above hold a major participation or a participation that provides control over them [14].

According to expert opinions, the state in its stockholder position must put in practice the principles of Corporate Governance by acting as an informed and active partner, on the basis of a consistent, coherent and coordinated ownership policy, assuring the management of public enterprises in a transparent, accountable, highly professional and efficient manner [23].

In many states belonging to the Organisation for Economic Co-operation and Development (OECD), the public enterprises provide a consistent part of the Gross domestic product (GDP), occupation of the labor forces and market capitalization. These are sometimes predominant in sectors like infrastructure and utilities (e.g., energy, transport, telecommunications), and a large segment of the population, as well as other sectors of the economy, depend on their performance [10; 23].

It thus results that the state can benefit from the instruments applicable to the private sector (including the

OECD principles regarding the Corporate Governance) in order to make its activity more efficient, gain profit and reach its objectives, including those of public policy, if it is the case.

Corporate governance is the combination of the control elements which operate together in order to regulate the relations between all those that have an interest in the company: stockholders, management, employees, clients, suppliers etc [20]. The main domains integrated within the concept of Corporate Governance are presented in Figure 2.

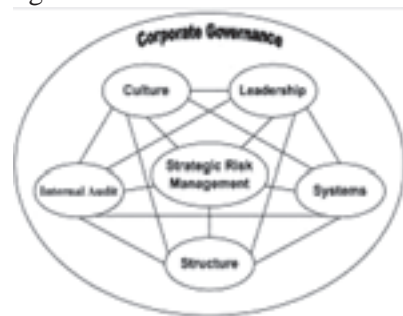


Figure 2. The main relational domains of Corporate Governance [24]

Consequently, Governance represents the “system through which organizations are managed and checked” or the “combination of process and structures implemented by the management in order to inform, manage, guide and monitor the activities of the organization in order to reach its objectives” [11].

One of the specific provisions of the concept is the necessity to separate the administration board from the management of the company. The administration board must supervise the activity of the management and make sure that it correctly reports to the shareholders [9; 25].

The interest manifested lately all over the world for governance offers it a large connotation which includes: ethic principles, social responsibility, good practice, and control activities.

There are two main issues regarding

the improvement of governance, with who usually refer: profoundly unethical corrupt and fraudulent behaviour practices by those who are at the top of the organization; the members of the low strategic (corporate) level of the management board (or of the top management) fail to provide the right direction for the organization or do not have the mechanisms to identify the significant problems or weak performance and fail to take the measures that are necessary for improvement [8].

Although the efforts necessary to obtain better governance began in the private sector, the principles equally apply to the public sector as well. It is thus understood that this concept can bring more value where the interests of the tax payers and of the general public are at stake, which have the interest that the public institutions be well managed in providing their specific services [10].

Figure 3 depicted the conditionings and interdependencies implied by the corporate governance which refer to: leadership and values, behaviour in business / ethics, competitiveness, social corporate responsibilities.

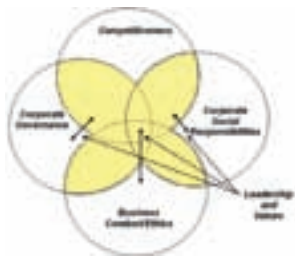


Figure 3. Determinations of Corporate Governance [16]

2. THE NEED FOR GOVERNANCE. RELATIONAL ELEMENTS. DETERMINING FACTORS OF CORPORATE GOVERNANCE

The need for governance is given by the separation that exists between those

who manage the organizations and those who hold an interest in the organization.

In this respect, from a conceptual and relational perspective, corporate governance includes: ethical principles, social responsibility, good business practices and control activities. It thus results the appropriate association and integration within the governance of operational terms like internal audit, internal control external audit, and risk management. There is a complex and continuous relation between corporate governance, internal audit and management, as well as between corporate governance and management structures, but at the same time there is a special treatment that envisages the important aspects related to social responsibility and the ethics of practices in business [13], [15].

The public and private management has the obligation to apply the provisions of the specific corporate governance in a correct and qualified manner so that to objectively protect the interests of the factors concerned with the organization. Those factors could be internal or external and may have different requirements and expectations, sometimes even conflicting with those of the organization. They may also put pressure on the organization with the purpose of satisfying their own interests.

According to the theory and practice in the field, corporate governance includes the following managerial obligations: the managers' responsibility for the accuracy of information in financial reports; the existence of tight deadlines for financial reporting; communication and total transparency with regard to financial results; transparency of internal audit, processes and external audit. Without the association of these elements, the credibility of commercial/private and public entities could be doubtful, because the financial results could cause suspicions regarding their conformity with reality [15].

Regardless of the fields in which they apply, the determining factors of the corporate governance are: integrity,

transparency, responsibility, and competence [7].

Integrity represents a key concept that describes an appropriate and ethical behavior, the concern for the interests of others and social responsibility.

Transparency. Bad things or weak performance often occur behind closed doors. When things are open to public scrutiny or are subjected to justified challenges by competent persons, they have the tendency to improve. But the natural tendency of people is to avoid a thorough examination of what they do. Subjecting their own actions, decisions and performances to examinations leads to improved performances. Without transparency the organization can not learn to become better, it may in the best case scenario hide its weak performances for a while, which will only act against its interests.

Responsibility is the most important aspect of governance, and perhaps the least understood and definitely the rarest in organizations. If in an organization responsibility is not clear and well defined, both the staff and the management have full liberty to act as they will. The specialists define five essential steps in assuming responsibility which, if not taken fully, lead to serious problems that will affect the organization.

The steps mentioned mainly envisage [10], [21]:

- Clarity of roles and responsibilities - If people do not know very well their responsibilities regarding their activity, results and behaviors, how can we expect them to act in this sense?

- Necessity to be accountable to the person who assigned a certain responsibility regarding the way in which it was carried out - We refer to hierarchical reporting and accounting that starts from inferior levels and ends at the level of the management council.

- The persons you are accountable to must hold sufficient and concrete information in order to question your statements.

- The way in which responsibility is engaged must be open to independent

examination.

- The existence of well intended mechanisms of reward and sanction, and this should function correctly and permanently.

Competence. It refers to the technical and behavioral abilities necessary to carry out responsibilities. The level of competence that is necessary to each position must be identified before that position is filled and must be revised regularly and the deficiencies corrected through development and specific measures [8].

In conclusion, integrity, transparency and responsibility hold no values if people do not also have the fundamental competences necessary to them in carrying out their activity.

3. CORRELATION OF ELEMENTS WITHIN CORPORATE GOVERNANCE

In order to ensure control mechanisms over managers in public entities that possess decision making autonomy (the right to use the resources allocated to them in order to achieve objectives), they are obliged by law [7] to implement adequate and functional processes of internal audit, risk management and internal / managerial control as major components of corporate governance. These three processes provide a systematic approach for the application of basic management rules in exerting the act of management that will increase the probability to achieve objectives in a legal, economical and efficient manner.

Within an organization (private company or public institution) the management represents the decision making factor in applying the principles of corporate governance. In this respect, the management team must clearly and precisely set the general objectives that the organization must attain, as well as the objectives partially subscribed to each subsystem within it. The objectives being mentioned are determined by the existence of that specific company itself, translated in

specific programmes and strategies.

We can observe in this context that risk management, internal control and internal audit become major components of corporate governance which we will be addressed in a correlative manner further on.

Good corporate governance is dependent on risk management in order to understand the problems that the organization is confronted with and on internal control which allows measures that will ensure the attainment of its objectives to be taken [8], [25].

Risk represents the uncertainty related to the occurrence of an event which, when it occurs, affects the accomplishment of the objectives of the organization, while in some situations it may decisively contribute to its fizzle out. Consequently, risk is not something certain, but it is tightly linked to the objectives of the organization which it can negatively influence.

The implementation and functioning of a risk management process at the organizational level implies the adoption of a new type of organization risk. It requires the increase of the probability to achieve the objectives, through the existence of a reaction capacity when facing the consequences of the risks practical occurrence.

Usually, in an organization each activity is subject to one or more risks, and it is necessary that these risks be evaluated in order to establish their importance, according to which the responsibility in taking adequate decisions as a response to those risks is determined.

After the identification, evaluation and classification of risks, they must be managed in order to identify within the organization the potential events that can affect the attainment of the objectives, the management acquiring thus a permanent instrument that facilitates the management process.

In order to manage the risks, the management uses levers at its disposal in order to identify and evaluate them. At the same time, the management of the organization acts with the available

resources and means in order to reduce the effects that risks may have on the attainment of objectives.

In these conditions, at the level of the management occurs the necessity to design an adequate strategy to manage the risks associated with all the objectives of the organization, as well as to design an adequate control system meant to ensure a permanent monitoring of threats (risks) [12], [13].

The economic crises that occurred in the US and European economies emphasized the fact that the accounting frauds are largely attributed to the lack of control. Thus, the close links between frauds, corporate governance and the role of control are highlighted. In this context, the informational transparency represents the indispensable element for financial market competitiveness, which leads to an efficient functioning of the systems of corporate governance and especially of control systems [15].

The management is responsible for organizing an adequate control system which, at the moment when it begins to function, has the role to maintain risks at an acceptable level for the leadership of the organization. The leadership must establish the general framework, including the strategy, policies and control responsibilities, on the basis of which it is necessary to conceive concrete ways of implementation, monitoring and reporting, followed by a periodic revision of the control system.

It results from the practice of economy that, through the existence of an efficient system of internal / managerial control, the leadership of every organization ensures an adequate control over the activities carried out by the management and execution personnel at different hierarchical levels and implicitly over the attainment of the proposed objectives. The implementation of an adequate system of internal / managerial control implies the alignment to the standards set by the Code of internal / managerial control [7; 15].

The control mechanisms /

instruments are necessary at all the levels and in all the positions within the organization and require two elements: a policy that clearly foresees what must be done, and procedures to put into practice the respective policy.

Through a systemic approach to the organization, the internal audit evaluates its capacity to attain its own objectives and to contribute to fulfilling the requirements of the society by monitoring the performance of the internal control and implicitly of the risk management.

The preventive role of internal audit within organizations is well known, keeping in mind that any type of governance, in order to be considered efficient, must envisage adequate control mechanisms and viable procedures of risk management, that will allow for intervention in critical situations in order to protect the actions of all the factors involved in the functioning of the organization [15].

Setting off from this fact, the identification of a vulnerable point or of a deficiency in the system will make the audit incapable of offering total insurance which, by means of recommendations, will draw the attention of the leadership on the problems that endanger the attainment of the objectives. Such a logical approach implies that, if the management personnel implement the recommendations of the auditors, they will receive assurances regarding the objectives' attainment [14].

By executing an audit of the system, the auditors focus their attention on the risks that may affect the fulfillment of the objectives and the way in which these risks are managed, as well as on the existing controls within the organization.

Thus, the internal audit evaluates the application of the governance in the systems of an organization, offering assurance and counseling to the leadership through recommendations regarding the introduction or improvement of policies, mechanisms and procedures.

4. CONCLUSIONS

From a conceptual and legal point of view, corporate governance emerged in Romania at the beginning of 2000. The first code of corporate governance was adopted in 2001. In 2008 it was replaced with a new code of corporate governance, which is based on the principles of the OCDE.

The concept of corporate governance continues to favoring a process of adaptation to the modern economy's requirements, to the more and more obvious globalization of social life and also to the necessities to inform investors and interested third parties in the activity of the companies.

The conclusions of the experts of the European Commission regarding the application of a new type of management at the level of public entities in Romania recommend attention especially towards increasing the managerial responsibility in the public sector and the administrative capacity to implement management systems in accordance with the principles of good practice accepted at international level.

Currently, the application of the "best practices" of governance in the developed economies determined the implementation of a new code of ethics in approximately 73% of European companies, while in Romania only 47% of companies declare information regarding the existence of such a code.

A good governance within the organization diminishes the risks, increases performance, opens the way toward financial markets, brings competitive goods and services to the market, improves the management style, shows transparency to all interested parties and social responsibilities. The lack of compulsory rules and structures can lead to chaos in business.

In the end it results that corporate governance integrates within any organization three fundamental elements: risk management, internal control system, and internal audit - as a key to monitor them. Thus, by blending these

elements, the goal to optimize corporate governance, having as key factor the internal audit, is achieved.

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NATURE CONSERVATION PROJECTS IN MILITARY DISTRICTS

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Military areas are very valuable sites from the perspective of nature conservation. The article explains the key factors in maintaining high biodiversity in these areas. It discusses the impact of destructive military activities on building and maintaining valuable habitats of European importance and the necessity to preserve these areas for the conservation of natural values for future generations. Extensive reorganization of the armed forces after the Cold War in Europe has resulted in the decommissioning of a large number of military sites from active military use. Ultimately their changed use has a negative impact on biodiversity. This article informs about the existence and importance of a database of military areas in Central and Eastern Europe and the attempt to declare these as protected areas. At the end of the article mentions LIFE+ projects aimed at the protection of nature in military areas, carried out in the countries of Central and Eastern Europe.

Key words: *military training area, military district, biodiversity, conservation.*

1. INTRODUCTION

The term “military areas” covers a wide and heterogeneous range of terrains and infrastructures owned and/or used by the armed forces. Although some have no particular interest for nature conservation, most of the military areas, and especially those used for training and testing, contain significant, even spectacular, amounts of natural and semi natural habitats and landscapes, with corresponding abundances of wildlife. Sometimes they are among the richest and most important sites for biodiversity in their country. Training areas can measure in thousands or tens of thousands of hectares each, but smaller military areas should not be overlooked: between airfield runways or around munitions depots and radar installations, for instance,

ecologically interesting pockets of nature often occur.

Prior to the extensive intensification of the country areas dedicated for military purposes had represented quite large surfaces in the individual countries of Europe, ranging to several thousands of hectares (France 265 000 ha, Great Britain 240 000 ha, Italy 170 000 ha, Germany 682 000 ha, Poland 191 000 ha, Slovakia 91 000 ha). Due to their large size, long-term isolation and specific regime these areas are very interesting regarding nature protection. After the Cold War in 1990 there were many profound changes in the armed forces of European countries and many redundant military areas were decommissioned. Since then their use has changed. Even the existing military training areas are exposed to pressures given

their commercial value. [3]

The armed forces may not originally have had the intention to preserve large tracts of natural heritage, but the fact that de facto they have done so, deserves to be acknowledged.

2. THE UNIQUE CHARACTER OF MILITARY AREAS

At first sight military activities and nature protection do not seem to have something in common. Military areas (military districts, military training areas, shooting ranges, lighthouses, radar stations, etc.) are usually considered destroyed land by laymen. This widespread notion is adopted especially by those who have never been in any military area. Obviously it is not true.

Military activities can be related to contamination of the environment by chemical, nuclear or oil material, with soil, flora and fauna destruction, noise pollution. However, the mentioned negative factors, if ever there, affect only very small areas that are intensively being used for training and are found inside the military training areas (e.g. shooting ranges, target areas). Due to safety reasons, these small areas intensively used for military training are surrounded by larger areas that serve as protection zones where there is practically no military activity. These protection zones are several times larger than areas intensively used for military activities. Thus they are very important in relation to nature protection. Their biological value is several times higher than the value of the surrounding land. Protection zones often serve as important refuge for endangered animal and plant species including habitats and species

of national and European importance.

Military areas have been isolated from surrounding land for decades. It is strictly forbidden for the public to enter military areas, as well as the use of these areas for non-military purposes. Thanks to long-term isolation from the surrounding land, military areas have been spared from human activities with negative impact on nature, such as intense agriculture and forestry, industrial production, mining and quarrying, construction and tourism. Many military areas have high biodiversity due to the fact, that they have never been used for agriculture. These areas have never been fertilised, manured, nor drained. There is a basic ecological principle in nature – the fewer nutrients in soli, the more diverse plant species. Oligotrophic environment (poor in nutrients) is more useful for the existence of microhabitats with specific plant and animal species in comparison to soil and water rich in phosphorus, when the ecosystem becomes uniform and the biodiversity decreases.

Regular disturbance of soil crusts as a result of military activities, which imitates the natural erosion by wind and water, paradoxically supports the preservation of some important habitats essential for the preservation of endangered plant and animal communities. Several rare plant species and invertebrates are dependent on military activities, which help maintain their habitats. Thus, bombing, shellfire, fires for training purposes and manoeuvres of armoured vehicles can imitate natural erosion processes and create conditions for pioneer plant and animal species or prevent natural

succession. Although bare sand and soil are uncommon habitats, they host a variety of rare plants and invertebrates. Tracked vehicles' traces filled with water can become an ideal habitat for amphibians.

Military areas in Europe have maintained relatively good conditions for natural communities, such as different types of water-meadows, natural forests, meadow communities, heathlands, bogs, open sand dunes and others, that can be found in the wild just in limited areas or not at all. As part of Europe's natural heritage, some parts of military areas are included in the system of areas of European significance and SPAs (NATURA 2000), which means the recognition of their natural values and manifestation of interest of the European Union to maintain these sites.

In spite of the fact that military districts' primary purpose is to meet the objectives regarding the national defence tasks, this purpose is not in conflict with the interests of nature conservation. The Armed Forces originally did not plan on preserving large areas of natural heritage, but the fact that they involuntarily did do it, has to be taken into account. At present, we notice the efforts of multifunctional of utilization of military territories not just in Western countries, but also in Central and Eastern Europe. The effort of all NATO and EU member countries that follow certain environmental standards is to include nature conservation into strategic programmes of their department of defence.

3. MILITARY SITES IN CENTRAL AND EASTERN EUROPE

As already mentioned, after the end of Cold War there has been an extensive reorganization

in the armed forces of individual countries of Central and Eastern Europe. There have been significant staff reductions, as well as military machinery, facilities and training grounds reduction.

Many of the areas previously used by the military for decades for their activities have suddenly become unnecessary for the armed forces and have gradually been sold or restored to the original owners or state. Many times these were areas important in terms of nature conservation. Land use of these areas has changed. In most cases this change has had a negative impact on the biodiversity in these former military training areas, which were inaccessible for the public and which were not used for agriculture nor forestry.

Thus declaring these former military areas as protected areas efforts to prevent their privatization are essential for nature conservation and biodiversity.

In this context the German natural foundation David (*Naturstiftung David*) has created a database that offers important information on military areas out of order as well as actively used military training areas in Germany and some countries of Central and Eastern Europe. The data collection was launched in German military training areas in 2001, in Central and Eastern Europe in 2008. Information in the database is regularly updated and in future the database will be expanded and it will include further countries. It should be noted, however, that the quality of the information from the database differs depending on the country and federal republics. Since 2005 90 000 hectares of decommissioned military sites in Germany have been declared national natural landmark. [4, 6]

Table no. 1 Number of military sites in Central and Eastern Europe
Source: Naturstiftung David - The database "nature conservation and military"

Country	All military sites	Sites actively used by the military	Military sites abolished	Military sites partially suspended
Germany	621	200	409	12
Poland	18	12	5	1
Czech Republic	19	11	7	1
Slovakia	9	5	4	0
Hungary	7	6	1	0
Estonia	6	6	0	0
Latvia	1	1	0	0
Lithuania	7	0	2	5

4. CARE OF MILITARY AREAS

Natural biotopes in military training areas are exposed to many threats. The most significant ones include:

- Natural succession of vegetation,
- Lack of reconciliation between the military use and nature conservation,
- Lack of awareness and capacities of military institutions to deal with nature conservation issues.

In Slovakia, unlike other European countries, the protection of nature within the department of defence is still not given adequate attention. The department lacks specialists in the field of nature conservation and also in the field of protection of rare biotopes in the military training areas (MTA), which leads to neglecting or underestimating this issue within the planning and practical realization of military activities. On the other hand the Armed Forces (AF) of the Slovak Republic (SR) do not hinder the cooperation in the field of nature conservation with non-governmental organizations. The proof is the cooperation of AF of SR within the successful realization of projects of the European Committee, especially focused on environment, within the

programme LIFE nature and LIFE+, in which Slovakia has been participating since 2002. Similar projects have been performed also in other countries of Central and Eastern Europe (see Table 2).

Table no. 2 Overview of projects LIFE+ in MTA in countries of Central and Eastern Europe
Source: HÖNTSCH, K., JOHST, A.: *Military training areas of high nature conservation value in Central and Eastern Europe – first analysis of database and networking process*

Country	Full name of LIFE+ project	Total budget	EU co-financing
Hungary	Restoration and conservation of priority habitats and species in the Eastern Balkan area	2,218,000 €	70 %
	Establishing the background of saving the Hungarian meadows of high conservation value	640,000 €	50 %
	Conservation of Old lands in Hungary	2,150,000 €	60 %
	Conservation of Aquatic habitats in the Carpathian basin	547,000 €	70 %
Slovakia	Restoration and management of Sand Dunes habitats in Žilina Military Training Area	1,138,000 €	70 %
	Restoration of wetlands in Žilina Military Training Area	812,000 €	50 %
Latvia	Military Training Areas in the Eastern Baltic Sea	3,711,000 €	50 %
	Restoration of biological diversity in military training area and Natura2000 site Aude	900,000 €	50 %

With Latvia and Hungary, Slovakia appears to be the CEE/SEE country where practical nature restoration and management work within military areas, and the collaboration between defence and environment authorities and NGOs, is most advanced. Thus, these three countries can act as role models and examples.

5. LIFE PROGRAMS IN THE MTA'S OF THE SLOVAK REPUBLIC

Zahorie Military District is the oldest and largest military district in Slovakia and it presently covers an area of 27 650 ha. Zahorie Military District was established in its recent

area in 1950, hence before the large-scale intensification of landscape. Since that time, the entire area has been used predominantly for military purposes. Other human activities have been restricted to the services for the military area only. This very specific land use has resulted in conservation of a unique area of great natural values. Running and still waters and wetlands alternate with dry sand dunes. Chemistry of eolian dunes is extremely acidic, which is reflected in specific soil conditions and vegetation cover. Thanks to extraordinary habitat diversity, there is a high number of species and communities with different ecological requirements present here on a relatively small area. High biological diversity is given also by the location of the area being situated on the edge of the Alpine, Pannonic and Continental biogeographic regions. Forest habitats of various types ranging from fen alder woods to dry pine-oak woods cover more than 72% of the area. 18 habitats of Community Importance and 6 habitats of National Importance have been recorded in the area. Thanks to the unique natural richness of Zahorie Military District, parts of this area have been included in the NATURA 2000 network. At present, ten Sites of Community Importance with a total area of almost 5 000 ha are located in Zahorie Military District, while proposals of other sites have been elaborated. In all Sites of Community Importance within Zahorie Military District their military use is considered as a priority. However, usually this is not in conflict with the interests of nature conservation. Zahorie has been the

scene of two nature restoration and management projects, co-financed by EU-LIFE. [1,2]

5.1. PROJECT 'RESTORATION OF THE WETLANDS OF ZAHORIE LOWLAND'

The first one in terms of its scope and lasting from 2005 to 2009, the project 'Restoration of the Wetlands of Zahorie Lowland' (WETREST, LIFE05 NAT/SK/000112) submitted by the State Nature Conservancy of the Slovak Republic was supported under the LIFE NATURE Program of the European Commission. The main project objective was to contribute to the development of NATURA 2000 network in Zahorie Lowland through the conservation, restoration and overall enhancement of important wetland habitats and species. The following activities were carried out as a part of the project implementation:

- Elaboration and implementation of Management Plans and Restoration Projects for 8 most significant wetlands - proposed Sites of Community Importance (4 of them are situated within Zahorie Military District),
- Elaboration of amendments to the forest management plans so that they are in compliance with the requirements of nature conservation,
- Implementation of specific restoration and management measures - restoration of the water regime of wetlands (blocking and backfilling the drainage ditches, restoration of small streams) and improvement of habitat conditions required by the most threatened plant and animal species,
- Construction of the fish bypass on Rudava River near Veľké Leváre community in order to enable

fish migration that has been obstructed by the existing weir, Restoration of species-rich lowland hay meadows along Rudava River (tree and bush cutting, mowing),

- Education and training of project personnel, including excursions, seminars and work - shops for staff of partner organizations participating in the project,

- Raising public awareness on wetland conservation and restoration through the project presentation in media, publishing information and education materials, organizing lectures and excursions for general public and installing information panels at the project sites.

All these actions dealt with sites that were not directly used for military training, but lay within the buffer zone around the exercise areas. [8]

5.2. THE 'RESTORATION AND MANAGEMENT OF SAND DUNES HABITATS IN ZÁHORIE MTA' PROJECT

At present, the rare habitats on the shooting ranges of the Zahorie Military Training Area are threatened by tree overgrowth, especially Scots Pine and Black Locust. Such overgrowing results in serious changes in the structure of these habitats and furthermore decreases the diversity of their unique flora and fauna. The second project does however deal directly with land used for military training and exercises. Therefore, since 2006 to 2011 the Military Technical and Testing Institute Zahorie, in cooperation with the State Nature Conservation of the Slovak Republic and the Regional Association for Nature Conservation

and Sustainable Development (BROZ), implemented the project 'Restoration and Management of Sand Dunes Habitats in Zahorie Military Training Area' (ZAHORIE SANDS, LIFE06NAT/SK/000115). The main objective of the project is to contribute to the development of the European network of protected areas NATURA 2000 in the Zahorie Military Training Area, especially through the enhanced conservation of the sand dunes and dry heaths habitats, their restoration and improvement of the living conditions for their characteristic species. Project area is formed by three Sites of Community Importance (SCI Bežnisko, SCI Kotlina and SCI Šranecké piesky). All three SCIs are actively used as shooting ranges and located in Zahorie MTA.

The following activities have been performed as a part of project implementation:

- Elaboration and testing of new methods and approaches to the habitat management in military areas to reconcile Natura 2000 conservation requirements with their military use;

- Elaboration and implementation of comprehensive Management Plans for 3 Sites of Community Importance (SCI Bežnisko, SCI Kotlina and SCI Šranecké piesky);

- Implementation of specific restoration and management measures and improvement of habitat conditions for the most threatened plant and animal species at the total area almost 500 ha;

- Favorable conservation status of the habitats and species of Community interest was reached at all 3 project sites;

- Education and training of project personnel, including excursions, seminars and workshops for staff of partner organizations participating in the project;

- Raising awareness of military personnel on nature conservation topics and improvement of cooperation between military and nature conservation institutions on nature conservation management in Zahorie MTA and other military areas in Slovakia;

- Raising public awareness on nature conservation in military areas and other project issues through project presentation in the media, publishing information and education materials, organizing lecture and excursions and installing information panels at project sites.

6. CONCLUSION

The long-term specific regime in the military areas has abruptly contributed to the rise of areas of high natural value. Biodiversity in military training areas is several times greater than in surrounding areas. This fact has to be taken into account and we must make every effort to ensure that the status of these areas is preserved. Many of the military training areas have been abolished and their use has been radically changed. The change has brought along also negative effects on nature in form of biodiversity reduction. It is important to learn from these experiences and when abolishing such military areas we should seek an appropriate form of area protection. [9]

European Committee supports and co-finances environmentally oriented projects also in military

environment with the aim to ensure that the situation of biotopes and species significant for Europe does not worsen. In 2004 the Slovak government approved the National list of proposed sites of Community Importance. Many of the proposed and chosen areas are in military districts or former military districts and have been included in the system of NATURA 2000, whose goal is to preserve the most precious natural biotopes and most endangered plants and animals.

The cooperation of the department of defense, state institutions and non-governmental organizations within the nature protection in the military training areas is now common practice in almost all developed countries. Learning about the natural values of military areas and understanding the importance of their protection is the best way to protect nature effectively, in the long-term and preserve it for the next generations. Rare biotopes and species of community importance can be preserved in the long term just with good understanding and mutual cooperation of department of defense and department of environmental protection. [5, 7]

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UNCERTAINTY IN PROCESS DESIGN AND PROCESS ECONOMICS USING HYSYS

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In process economics, equipment cost is an important element. Equipment cost is based on the size of equipment, which depends on how much process fluid is required to be treated by the equipment. HYSYS software is widely used as a simulator to design the equipments in a process industry. In order to perform simulation in HYSYS, a thermodynamic model is chosen as a Fluid package in HYSYS. This paper focuses on equipment sizing by using two different thermodynamic models and shows that for the same material and energy requirements of process fluids, there is a wide difference in sizing results of the same equipment. Further, the economic study also shows that there is a huge difference of costs for same equipment, if two different thermodynamic models are used for sizing purposes in HYSYS. The study recommends the selection of appropriate and suitable thermodynamic model to perform process designing using HYSYS.

Key words: HYSYS, simulation, process, design, economics, thermodynamic model, cost estimation.

1. INTRODUCTION

Chemical process plants are the combination of unit operations (phenomena involving physical changes) and unit processes (phenomena involving chemical changes). One of the important economical aspects of chemical plants is the amount of material and energy required to produce a product. In order to simulate the material and energy balances, the ASPEN HYSYS simulator, owned by ASPEN TECHNOLOGY [1], is widely used by academia, researchers and industrial design engineers.

For trustworthy results, the selection of appropriate and suitable thermodynamic model in a HYSYS simulation environment is very important. The need for a reliable thermodynamic model is essential when the components are not built-in in the library of HYSYS and are defined by the user. Process economics is based on the size of

equipment required, which alternatively is based on the material and energy required to produce the final product. In a simulation environment like HYSYS, the requirement of the material and energy is based on the thermodynamic model or Fluid package selected in order to perform calculations. This paper is exploring the importance of selecting an appropriate thermodynamic model for simulation purposes in HYSYS and shows how a thermodynamic model affects the whole process economics. The paper emphasizes the selections of a suitable thermodynamic model by using a case study on process equipment.

2. METHODOLOGY

Biodiesel is an alternate energy fuel, which, on industrial scale, is produced by the reaction of oil with methanol in the presence of sodium hydroxide (NaOH). The results of this reaction,

callation transesterification, are biodiesel, and glycerol and soap as by-products. The production of soap is dependent on interpretive reactions conditions and could be avoided. The oil used in the current study is *Jatropha* oil, oil belonging to the class of non-edible oil. The Process Flow Diagram (PFD) for producing biodiesel consists of a number of equipments. One of the main equipments is the reactor where the main reaction of oil and methanol takes place. The reactor type used is Continuous Stirred Tank Reactor abbreviated as C.S.T.R. This study performs the simulations on C.S.T.R and based on the reactor sizes, the economic analysis is also performed.

There are six components involved in the reactor namely oil, methanol, sodium hydroxide, soap, biodiesel and glycerol. To perform the simulation in HYSYS, the physical and chemical properties of methanol, sodium hydroxide and glycerol were recalled from HYSYS library. Other components like soap, biodiesel and oil were defined in HYSYS using the combinations of their molecular weights and either liquid density or boiling points. To analyze the effect of choosing different thermodynamic models on sizing results, two different thermodynamic models/fluid packages were chosen. The first was 'General NRTL' and the other was 'Glycol Package'.

Assumptions

The following assumptions were made to perform the studies;

1) The input quantities of oil, methanol and sodium hydroxide were fixed in both fluid package simulations.

2) The biodiesel in output stream from the reactor, named mixture, should have a composition of 54%.

3) Since the reactor is provided with adequate reaction conditions, there is no soap formation in the reaction products.

4) The reaction is 95% completed

which means there would be some reactants present in the 'mixture' stream.

The reactor streams are shown in Figure 1.

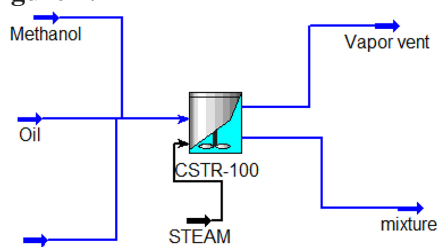


Fig. 1 Continuous Stirred Tank Reactor (C.S.T.R) – A case study

The methodology was extended to the whole production system shown in Figure 2 as a block diagram. The different equipments considered in the study were falling film evaporator, mixer reactor, two flash evaporators, settling tank, splitter and liquid-liquid extraction unit.

3. RESULTS

The simulation of C.S.T.R using the General NRTL thermodynamic model showed that the volume of reactor required for biodiesel production is 8.30 m³ and should have dimensions 1.917m x 2.876m (D x H). The use of the Glycol Package thermodynamic model showed that the volume of reactor required is 11.10m³ and with the dimensions of 2.112m x 3.168m (D x H).

Apparently, there should not be any such difference between the volume requirements of the reactors since both the input quantities and output composition of biodiesel are fixed. However, there is a difference in the reactor volumes triggered by the use of two different thermodynamic models. Moreover, Table 1 shows the compositions in the mixture stream calculated by two different fluid packages and highlights that there is no difference between the compositions of output stream calculated by either thermodynamic model.

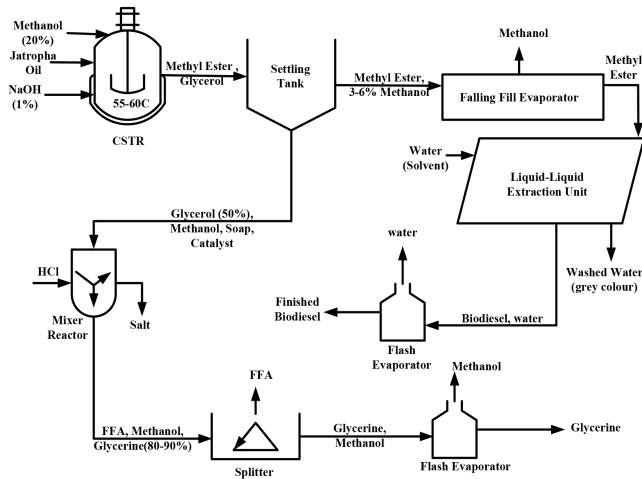


Fig. 2. Block Diagram to produce Biodiesel

Table no. 1. Compositions in output stream ‘mixture’ cost index of year 1967 and cost index of year 2013 (not 2014, since the cost index for year 2014 is yet to be published [4]. Cost in current year A in relation to any previous year B is calculated as [2]

Component	Mole Fractions (General NRTL)	Mole Fractions (Glycol Package)
NaOH	0.0644	0.0642
Methanol	0.1402	0.1400
Glycerol	0.2088	0.2088
Biodiesel	0.5400	0.5400
Soap	0.0000	0.0000
Oil	0.0468	0.0467

Process Economics

Chemical plant cost consists of two elements: one is total investment required for the project and the other is the annual operating cost [2]. Total project investment is the sum of working capital and fixed capital and the annual operating cost is the sum of variable cost and fixed cost. According to Factorial method of cost estimation, the fixed capital cost is based on the purchase costs of major equipments (PCE). Hence, knowing the purchase costs of major equipments involved in PFD, the fixed capital cost can be calculated based on those equipments. Since we assume the input quantities in both cases are the same, then the operational costs would be the same. However, there will be a difference in fixed capital cost as the reactor sizes are different.

The cost of reactor was estimated using literature [3]. The reference had cost data back to year 1967. The cost data was updated to year 2013 using the

Cost in year A = cost in year B *(I_A / I_B)

Where, I_A/I_B = cost index year A/cost index year B

Since there was no direct cost index available from 1967 to present, the above equation was split up into two different periods: 1967 to 1980 and 1980 to 2013, respectively, as the cost index was available for these years in the literature [5][6]. Purchased costs of equipments were adopted from the literature [3] and the cost data updated to year 2013 provided the following results.

For a capacity of 8.30 m3, the reactor cost was US \$90,092 and for a capacity of 11.10 m3, the reactor cost was US \$120,484. This shows that there is a difference of US \$30,392 between the two reactor sizes. This difference is raised just because of selection of thermodynamic model in the study. It should be mentioned here that this difference in cost is just for one piece of equipment, namely the reactor. The simulation, using two different thermodynamic models, was performed

on all equipments present in the block diagram presented in Fig. 2 and sizing results were obtained. The economic analysis was performed on equipments' sizing results. Table 2 presents the costs of such equipments, using two different thermodynamic models.

Table no.2. Total cost of Major Equipments

Equipment	Cost (US \$) using General NRTL	Cost (US \$) using Glycol Package
Reactor	90,174	120,484
Falling Film Evaporator	75,889	101,397
Mixer Reactor	46,872	62,628
Flash Evaporator	84,817	113,327
Flash Evaporator	55,801	74,557
Settling Tank	8,928	11,929
Splitter	8,035	10,736
Liquid-Liquid Extraction	30,802	41,155
Total Cost	401,321	536,215

4. CONCLUSIONS

The process economics of a Chemical plant are based on the number and sizes of equipments required for producing a particular product. HYSYS is a simulation tool, which is widely used for sizing equipments. One of the basic steps in building a simulation environment in HYSYS, after defining components, is the selection of an appropriate thermodynamic model/Fluid package. The current study provides an insight into the importance of selecting a reliable thermodynamic model in HYSYS. The study reveals that, having the same amounts of input and output material and energy streams, two different thermodynamic models, in HYSYS give two different capacities of a reactor. The study also shows that this difference in capacities leads to different

cost estimation results, which affects the process economics. The process economics performed on a whole biodiesel production system showed that, using the sizing results of two different thermodynamic models in HYSYS, a difference of US \$134,894 in total purchase costs of major equipments is observed. Total production cost is based on purchase costs of major equipments and as there is a huge difference in costs, the total production cost may be either over-estimated or under-estimated. Therefore, the current study recommends following the general guidelines in selecting an appropriate and suitable thermodynamic model/Fluid package in HYSYS, before the simulation is performed in HYSYS.

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MODERN BUILDING STRUCTURES USED FOR MILITARY PURPOSES

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This paper investigates the technical aspects of the spherical spatial structures, focusing on the tensegrity building systems used for military purpose. The spherical spatial structures have been studied and used since antiquity. Pythagoras, Plato and Euclid were conducted extensive research on the concept of such type of structures. Regular pentagon has properties related to the value of the golden section, intuitively used by great architects and engineers since ancient times. In the Middle Ages, Leonardo Da Vinci created spatial objects using proportions based on the golden number, and later R. B. Fuller made the famous geodesic domes. The structures proposed by the authors are based on concepts related to the "golden section", on studies made on the regular pentagon, on the spatial volumes able to be inscribed in spheres and on the tensegrity systems. The proposed structures presents some advantages related to the ease of mounting, to the volume covered, to the resistance to the environmental factors (snow, wind, earthquake, and so on). The paper presents the conclusions of the investigations on the components of the spatial structures and on the outcomes of their use.

Key words: spherical spatial structure, golden section, geodesic dome, regular pentagon, regular hexagon, tensegrity system.

1. TYPES OF SPHERICAL SPATIAL STRUCTURES

The spherical structures have been used since ancient times. Nowadays they are parts of the most visited and impressive edifices in the world (Figure 1) [2, 3].



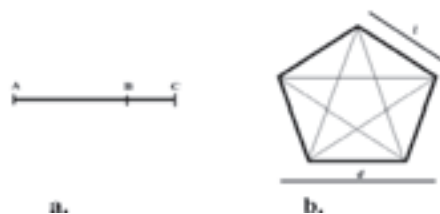
Pantheon in Rome

Hagia Sophia in Istanbul

Figure 1. Antique edifices

Introducing the golden section rule in the architecture, the concept of the

perfect proportion of the elements that constitute the spatial spherical structures has developed. If a segment is divided so, that the ratio of the whole and the larger side is equal to the ratio of the larger side and the lower side, than the ratio is equal to the golden number, Φ (Figure 2, a) [1, 2, 3].



a.

b.

Figure 2 Golden number

a. defining the golden number;

b. finding the golden number into the regular pentagon structure

$$AC/AB = AB/BC = (\rightarrow \Phi^2 - \Phi - 1 = 0) \quad (1)$$

The results of the equation are as follows:

$$\phi_1 = \frac{1+\sqrt{5}}{2} > 0 \quad (2)$$

$$\phi_2 = \frac{1-\sqrt{5}}{2} < 0 \quad (3)$$

The results show that the negative value is not a solution of the equation, as the Φ golden number is the result of the ratio of two positive numbers [1, 3, 5]. So, the value of $\phi = \frac{1+\sqrt{5}}{2} \approx 1,618...$

having an infinite number of decimals.

The ratio of the diagonal and the edge of a regular pentagon has as result the value of the golden number, Φ (Figure 2, b).

By rotating around axes the flat surfaces obtained with the proportion rules of the golden number, Φ , spatial structures can be built on, based on parallelepipeds, prisms or pyramids. Such spatial objects have been first imagined and drawn by LEONARDO DA VINCI (Fig. 3) [3, 5, 6].



Figure 3 Spatial structures imagined by Leonardo da VINCI:

- a. "ycocedron planus vacuus" (icosahedron),
- b. "duodecudron planus vacuus" (dodecahedron),
- c. "vigintisex basium planus vacuus" (semiregular polyhedron),
- d. "ycocedron abscisus vacuus" (semiregular polyhedron),
- e. "vigintisex basium elevatus vacuus" (stellated dodecahedron),
- f. "octocedron elevatus vacuus" (stella octangula)

Domes are spherical structures that cover large openings and they are built in two ways: monolithic ones – using concrete as the base raw material and geodesic ones, a structure made of bars (preferably steel or wood).

The building principle of the geodesic domes has been developed and implemented by R. B. Fuller in "Laminar geodesic domes" (1965). Using isosceles triangles, Fuller found a way to divide the spherical surface into equal flat surfaces, obtaining thus an image of a complete spherical structure made of bars (Figure 4). These spatial structures have two main characteristics: each node is the joint of 6 bar ends; the nodes are connected into triangle shapes.

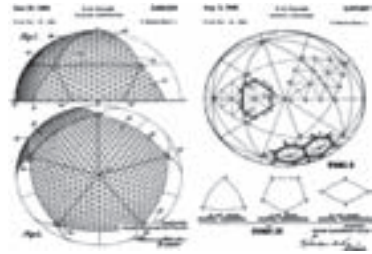


Figure 4. The dome of R. B. Fuller

By using Fuller's principles into architecture, public structures or even single-family homes were built (Figure 5) [7, 8, 9, 10, 11].



Figure 5 Fuller's dome used in public buildings

Defining the spherical spatial structure, the properties of regular polyhedrons as tetrahedron, hexahedron, octahedron, dodecahedron or icosahedron can be used in buildings architecture (Figure 6).



Figure. 6 Regular polyhedron: a . tetrahedron; b. hexahedron; c. octahedron; d. dodecahedron; e. icosahedron

For an optimal use in building architecture, the angle between two adjacent polygons must be as large as

possible. The most suitable polyhedron to be used in spherical structures is the dodecahedron, for which the angle between two adjacent polygons is 115° .

In case of rotating the pentagons of the dodecahedron, so that they no longer have a common edge, but a common point, an irregular polyhedron with 60 equal edges is obtained, composed of 12 initial pentagons and 20 equilateral triangles in addition. The polyhedron thus obtained is modified as follows: each pentagon is moved at a distance equal to the length of an edge, so that the 20 equilateral triangles are turning into regular hexagons, each node consisting of 3 edges. Thus, another irregular spherical polyhedron composed of 90 equal edges and 60 identical vertices is obtained (Figure 7) [4, 14].

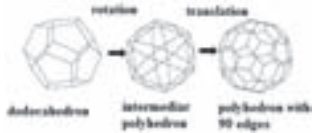


Figure 7 Genesis of the irregular polyhedron with 90 equal bars

When cutting the irregular polyhedron, valuable structures can be obtained for the building architecture (Figure 8) [12, 13].

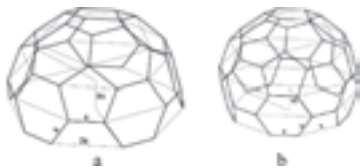


Figure 8 Sectioned parts of the irregular polyhedron

The projection of the spatial structure shown in Fig.8a is obtained by alternating edges with length a and $2a$ respectively (Figure 9). The radius of the circumscribed circle (the projection circle) has the value of $2,441244516a$. The height of this structure is shown in

Figure 10 [15, 16, 17].



Figure 9 Edges a and $2a$ inscribed in the projection circle



Figure 10 Forming of the transverse module

If a part of the projection that alternates a and $2a$ edges is mirrored at a distance of $0,850650808a$, a module consisting of equal bars is obtained. They form hexagons and half of hexagons. (Figure 11)



Figure 11 The transverse module

Repeating the module, a half cylinder structure is obtained. This structure is composed of hexagons reinforced with anchors with the length $2a$, namely the diagonal of the hexagon with edge of length a (Figure 12).



Figure 12 The complete structure

2. TENSEGRITY SYSTEMS

Tensegrity systems are light structures, suitable for knock down and foldable structures. Tensegrity systems are composed of cables and rigid bars

and have the following characteristics: the static stability of the structure is the result of pre-tensioning the cables; the rigid elements (bars) are not connected one to the other and they are subjected only to compression strains; there are no rigid joints in the structure, but articulated joints only. (Figure 13) [16,18].



Figure 13 Tensegrity systems

3. SPATIAL SYSTEMS OF THE ARTICULATED JOINTS BARS

The way of calculating the bar strains is presented here below: all bars are considered to be sectioned; the sectioned bars are replaced by their unknown axial internal force in the bar; the equilibrium of each node is expressed by equations, resulting thus $3n$ equations with $(b + r)$ unknown values,

- where: n is the number of nodes;
- b – number of bars;
- r – number of single bearing bonds.

The equation of the internal stress of the bars results as follows:

$$A \times N = F \quad (4)$$

where:

- A is the equilibrium matrix;
- N – vector of the axial internal forces;
- F – vector of the forces in the nodes.

If $\det(A) \neq 0$, then $N = \text{inv}(A) \times F$;

The systems of articulated joint bars have the following characteristics:

- $b + r = 3n$, $\det(A) \neq 0$ – statically determinate system;
- $b + r < 3n$, $\text{rang}(A) = (b + r)$ – mechanism with $m = 3n - (b + r)$ degrees of freedom;
- $b + r > 3n$, $\text{rang}(A) = 3n$ – statically indeterminate system, $s = b + r - 3n$ – degree of statical indetermination;
- $q = \text{rang}(A) < \min(3n, b + r)$

–critical system, $s = b + r - q$; $m = 3n - q$.

In critical systems there is a number s of vectors with $N_0 \neq 0$, so that $A \times N_0 = 0$ and these can be pre-tensioned and there is a number of m degrees of freedom for each mechanism, so that an infinite number of mechanism could exist.

N_0 is the number of self strains that meet the conditions of equilibrium, without loading the system. If corresponded displacements are applied to the infinite number of mechanisms, then, theoretically, there are an infinite number of strains in the system. For certain loads, the critical system behaves as a statically indeterminate system. For other loads, the system behaves as a mechanism.

The tensegrity systems are critical systems, when are subjected to a set of self strains ($s=1$) and have one or more degrees of freedom as a mechanism ($m \geq 1$). By pre-tensioning the system, it becomes stable and the kinematic freedom of degrees become rigid ones. After removing the disruptive external actions, the resultant of internal stress of the bar restores the system to its initial state. (Figure 14).



Figure 14 Structures that use tensegrity systems

In Figure 15 the use of the tensegrity systems in case of geodesic domes is presented.



Figure 15 Geodesic tensegrity Dom (1958)

4. CONCLUSION

A possible destination of the spherical structures could be the military buildings, due to the fact that they are light structures and even knock-down ones, able to be placed on any kind of land. If the structure fulfills the conditions imposed by the tensegrity systems, then it can be easily transported as modules, and can be used for military building purpose.

The proposed spherical structures can be fixed or knock-down structures and for the last one the tensegrity structures are recommended.

For fixed structures (sheds for example), sections of the structures with 90 equal bars can be used, but the most appropriate one is the modular structure presented in Fig. 12.

As the strength point of view, the presented structures are possible to be optimized. The structures behave as mechanisms, but using tensegrity systems, they can be optimized so, that the reaction of the structure (and especially of the system) to the action of the external factors to be superior to the current structures used for military building purpose, and not only for them.

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UNMANNED AIRCRAFT VEHICLE (UAV) IN THE ROMANIAN AIRSPACE. AN OVERVIEW

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For the last decade the unmanned aircraft vehicle (UAV) field has evolved in terms of the sub-branches established in the aerospace industry. At national level the UAV market is still in its infancy but acknowledges an upward trend in the implementation and use of UAVs in civilian and military missions. The achievements of the past decade confirms that Romanian specialists are able to conceive, design and build UAVs at a technological and operational level comparable to the one achieved by large international producers creating the prerequisites of developing a sub-sector for the national aeronautic industry. The current article aims at providing an overview of all activities related to the conception, manufacturing, testing, improving, operating UAVs as these activities evolved within the national airspace filed with brief references to the missions and legislation in this area.

Key words: *unmanned aerial vehicles, air missions, UAV legislation.*

1.INTRODUCTION

1.1. Definitions

The Defence Department of the U.S.A. defines UAV as a self-propelled aerial vehicle that does not have a pilot on board and uses aerodynamic forces to fly autonomously or remotely piloted and is capable of carrying payloads on board [1].

The abbreviation UAV has been extended in some cases to UAS (unmanned-aircraft vehicle system). The U.S. Federal Aviation Administration has adopted the name unmanned Aircraft System (UAS), to reflect the fact that these complex systems include, in addition to the vehicle itself ground control stations, plus other auxiliary support elements. Also, the term is also used unmanned aircraft (UA)

when making direct reference to the air component of UAS [2].

1.2. Historical references regarding UAVs in Romania

In 1981 the first flight of the target aircraft ATM-1(M) manufactured in IPL "23 August" Tg. Mures took place (see Figure 1, table 1), and the first drawings of the aircraft ATM-1 at the shooting range Capu Midia, Constanta date back 1983. The vector was made of composite materials (fuselage) and polyurethane foam (wings) and the propulsion system consisted of a two-stroke combustion engine that involves a bipal propeller, [3, 4, 29]. IPL "23 August" has made flying wing ATM-001 (wingspan 1.54 m), see Figure 2 and ATM-3 (Figure 3).



Fig. 1 ATM 1M



Fig. 2 ATM-001 (flying wing)



Fig.3 ATM-3

Table no. 1. ATM Features 1M [3, 29]

Span/ Length/ Height	2.63 / 1.75 0.58 m	Range	2 km
Speed max / cruise / min	190/160/ 35 km/h	Propulsion	24cm ³ / 1.7 CP
Weight max / payload	8/5 kg	Systems	RPV / remote control
Max. ceiling	2800 m	Missions	Aerial target

Between 1986-1997, research UAV are used, type VR-3 Reis, Soviet production on Kogalniceanu airfield, Constanta. The air vector was a modified version of target-17 MM. VR-3 Reis and was equipped with a jet engine R9A-300/KR-17 (RU-19 A-300) and the aerodynamics was kind canard delta wing structure made of Al alloys and composites (Figure 2 and table 2). Payload consisted of camera sensors. The system was auto-managed by BAZ-135 transporters TZM, which could carry two planes, and the launch was in a cylindrical container mounted on the vehicle BAZ-135 SPU, see Figure 4, [17, 26].



Fig. 4 VR-3 Reis [26]

The VR-3 squadron was a completely autonomous and deployable system, completed with technical and technological capabilities necessary for the preparation and the maintenance of systems, ground equipment and embarked equipment, to prepare for launch, launch, recovery, transport, and for the procurement, processing, interpretation of the information obtained during missions in areas of interest.

In 1991 it achieved the target plane and introduced the ATM-03 shooting in the shooting range Capu Midia, Constanta (see figure 3) and in 1997 introduced the radio directed system of targets, EADS

& SDE FOX-TS1, (see figure 5, table 3) French production in the shooting range Capu Midia, Constanta [4].

Table no. 2. Features VR-3 Reis [26]

Span/ Length/ Height	2.24 / 8.06 / 1.54 m	Range	200 km
Speed max / cruise / min	950 km/h	Propulsion TRZ 117	590 kgf
Weight max / payload	1230 kg	Systems	Autonomous guided
Max. ceiling	5000 m	Missions	Data acquisitions

Table no. 3. Features Fox-TS 1 (TX) [28]

Span / Length	4 / 2.75 m	Endurance	1÷5 h
Speed max	180 km/h	Propulsion	Limbach / 22 HP
Weight max	135 kg	Systems	RPV / remote control
Max. ceiling	3000 m	Missions	Aerial target



Fig. 5 Fox-TS 1 (TX) [28]

Shadow 600 (see Figure 6, table 4) is first used in 1998 at Timisoara airport and in 2000 the first application of UAVS occurs on Sibiu airfield. In 2003 SHADOW-600 system is deployed in the Iraq theater of operations between 2003 to 2009 and executed over 800 missions in Iraq (over 2000 flight hours). The system was delivered in 2001 and entered service with the 143rd Squadron at Mihail Kogalniceanu, with a value of .5 million dollars replacing the VR-3. [5, 27].

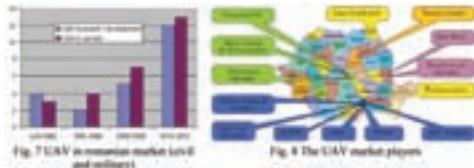
Table no. 4. Features Shadow 600 [16, 27]

Span / Length / Height	6.83 / 4.62 / 1.15 m	Endurance/ range	12-14 h / 200 km
Speed max	190 km/h	Propulsion	52 HP
Weight max	585 kg	Systems	Autonomous guided
Max. ceiling	5100 m	Missions	Data acquisitions



1.3. UAV evolution in Romania

Due to increasing funding for projects and to the increasing demand for systems market profile drones used for data acquisition in areas of interest, see Figure 7, [6, 7], UAV development in Romania has been evolving. In this respect, partnerships between research institutions and industrial entities are worth mentioning (INCAS Bucharest, Politehnica University of Bucharest, Dunărea de Jos University of Galati, Transilvania University of Brasov, Military Technical Academy Bucharest, ACTTM Bucharest, INAV Bucharest). UAV market players (research, manufacturing, use) are shown in Figure 8.



Projects and domestic firms like TeamNet & AFT Hirrus flying wing (Figure 9), AFT (Autonomous Flight Technologies) with Falcon I, Falcon II (see Table 5 and Figure 10), Electromecanica Ploiesti with ATT-01 [8, 9] have become visible and there have been purchases of airline models FPV (ARF / RTF – almost ready to fly) and FPV components of renowned manufacturers: Graupner, Robbe and E-flite, Hobby King [10, 11, 12], and national distributors Sierra Modelsport Ltd. and Phoenixmodels Ltd., see Figure 8, [13, 14].



Table no.5. Falcon I and Falcon II features [8]

Features/ UAVs	Falcon I	Falcon II
Wingspan/ length	3.2 / 2.6 m	5.3 / - m
Speed max/ cruise	230/120 km/h	280 / 130 km/h
Total mass (MTOW/ payload)	25/5 kg	140/50 kg
Operating range/ Endurance	32 km/1 h	100 km / 6 h
Service ceiling	3000 m	
Propulsion	12 HP	32 HP
Mission	aerial target	

2. NATIONAL RESEARCH IN THE UAV FIELD

National concerns for the UAV are found both in the private and research and development institutions. A number of research institutions have initiated and completed projects aimed at developing vectors and human unmanned systems on board that can be used in military and / or civilian missions. Efforts in the concept, design manufacture, testing, operation and management of UAV systems are currently being conducted as part of a series of research/development endeavors undertaken in institutions and in higher education such as:

a. INAV Bucharest (Argus XL, XS, S), see Figure 11 and Table 6 [18];



Table no. 6. Argus XL, Argus XS [7]

Features/ UAVs	Argus XL	Argus S
Wingspan/ length	5/4.1/1.72 m	2.4 / 0,84 / 1.94 m
Speed max/ cruise	230/63 km/h	150/40 km/h
Total mass (MTOW/ payload)	140/40 kg	24 / 5 kg
Operating range/ Endurance	300 km / -	220 km/ 4 h
Propulsion	20 HP	-
Mission	Data acquisitions	

b. Military Equipment and Technologies Research Agency, Bucharest - ACTTM (SACT 5 Boreal) (see figure 12a, table 7) [19] and ATM-01 aerial target upgrade (figure 12b) [40];



Table no.7. SACT 5 Boreal features [19, 33]

Span I/ II	1.8/2.8 m	Autonomy/ Range	1.2 h/ 6 km
Cruise speed	60 km/h	Propulsion	electric
Weight max	5 kg	Systems	Autonomous guided
Ceiling	250 ÷ 800 m	Missions	Data acquisitions

c. National Institute for Aerospace Research “Elie Carafoli”, INCAS Bucharest (IAR-T and Automatic aerial platform strategic battle mode – PAMLUS project), see Figure 13 and Table 8 [20];

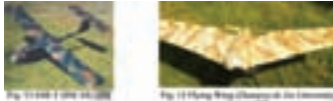


Table no.8. IAR-T features

Span	-	Range / Autonomy	10 km / 0,5 h
Max. speed	180 km/h	Propulsion	4.1 HP
Weight max/ payload	20/ 5 kg	Systems	Autonomous guided
Ceiling	300 m	Missions	Data acquisitions

d. Henry Coană Air Force Academy of Braşov, with research on improving flight performance of ATM 1M [29];

e. Dunărea de Jos University of Galaţi (see Figure 14) [30].

In the private sector a number of businesses are engaged in designing, manufacturing, testing and marketing unmanned aerial systems such as:

a. AFT (Autonomous Flight Technologies) /TeamNet (Bucureşti) with Hirrus, Soim I, II, (see Figure 15 and Table 9) [21, 36];

b. Sierra Modellsport Ltd. (Botosani), sells UAV systems (flying wing) ready to fly or components (Lehmann systems, see Figure 16) [22];

c. Compozite Ltd. (Braşov) company initiated a research project on miniUAV (aerial target) catapult-launched with a canard design, see Figure 17, [35].

d. Reev River Ltd. (Galaţi) with

Phoenix-1 portable miniUAV, Phoenix-2 medium portable UAV and Phoenix-3 portable UAV (see Figure 18, and Table 10), [37].

e. Electromecanica Ltd. Ploiesti, developed product ATT-01 (aerial target) with characteristic of table 11 (see figure 19), [38].

Table no. 9. Hirrus flying wing features [21]

Span/ Length	2.35/ 1.1 m	Endurance/ range	3 h/15 km
Speed max/ cruise	130/ 90 km/h	Propulsion	electric
Weight max / payload	7 / 0.9 kg	Systems	Autonomous guided
Missions	law enforcement, reconnaissance, search and rescue, data acquisitions		



Table no. 10. Phoenix 1, Phoenix 2, Phoenix 3 features

Features / UAVs	Phoenix 1	Phoenix 2	Phoenix 3
Wingspan	1.2 m	1.7 m	2 m
Speed max.	100 km/h	220 km/h	80 km/h
Payload	0.7 kg	2 kg	2.5 kg
Ceiling	3500 m	4500 m	4500 m
Endurance	0.75 h	1 – 2 h	0.8 h
Propulsion	electric	combustion	electric
Mission	Data acquisitions		



Table no.11. ATT-01 features

Span	-	Range / Autonomy	10 km / 0.5 h
Max. speed	180 km/h	Propulsion	4.1 HP
Weight max / payload	20/5 kg	Systems	Autonomous guided
Ceiling	300 m	Missions	Data acquisitions



3. UAV STANDINGS, MISSIONS AND LEGISLATION

3.1. UAV standing

The literature in the UAV field [15, 16] reveals classifications in military terms, as follows:

First Grade: portable, hand launched and operated individually, with a range of 30 km and under 2 hours. The simple launch and recovery features allow operators to quickly engage.

Second Grade: are limited in terms of range and capacity to support large areas of operations, requiring previously controlled launching and recovery areas.

Third Grade. Most fixed-wing UAVs in this class require landing runways, although some are supported by the launch and recovery systems. They require information on airspace much larger than systems in other classes of airspace management alongside manned aircraft. Depending on the geometry and mass restrictions systems, this class can be tracked by a monitoring system.

3.2. UAV missions

UAV use is determined by capacity and quality of the payload. Unmanned aerial systems on board can perform a series of missions in areas of interest, according to the user, as follows: surveillance missions, security and prevention (security, control and security objectives); search and rescue missions (MEDEVAC), military and special missions (ISTAR, combat mission) scientific missions and experimental (experimental models, demonstrators).

Depending on the difficulty of the mission, UAVs can execute D3 missions: Dull (missions wear), Dirty (missions "dirty") and Dangerous (dangerous missions). Using UAV platforms in hostile environments reduces the risk of human losses and allows launching precision-guided munitions out of enemy forces range.

UAV operating in national airspace have a number of distinct missions: air targets, data acquisition (in various areas of interest), scientific and experimental ones [15, 16].

3.3 UAV related Romanian legislation

Exploitation of ground and flight of unmanned aircraft vehicles in national airspace is regulated by a series of laws and regulations to date [23, 24, 25] delineating both categories and concepts (aerodyne, balloon) and flight documents admissibility: "Unmanned aerial vehicle (UAV) – a vehicle that meets the conditions specified in RCAR-AZAC.100 section (I). E – unmanned aerial vehicle, operating with a mass less than 150 kg."

A recent regulation [24] defines and maintains the use of UAV airspace in accordance with modern technological developments of the years 2013 to 2014, especially for unmanned airborne vector systems for recording and transmitting data. The document defines terms used in the current UAV and operating conditions in the national airspace (see Figure 20).



Fig.20 Evolution of civil aviation legislation (including UAV)

4. CONCLUSIONS & PERSPECTIVES

Review of unmanned aircraft by classifying them and their wishes with the laws and regulations in the field clarification of this relatively new field of aeronautics. The difference in equipment, implement and development lead implicitly to cost differences and capabilities of these aircraft that have already their own history and development along with other types of aircraft known.

The achievements of the past decade confirms that Romanian specialists are able to conceive, design and build UAV at a technological and operational level comparable to the one achieved by large international producers creating the prerequisites of developing a sub-sector for the national aeronautic industry.

Research studies state that surveillance missions, reconnaissance and electronic warfare, manned

performed onboard will be taken completely by UAS. Moreover, these missions will extend regarding direct air support and air defense in neutralizing enemy ground-based.

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BOOK REVIEW

SOLDIERS WITHOUT FRONTIERS: THE VIEW FROM THE GROUND. EXPERIENCES OF ASYMMETRIC WARFARE

Edited by:

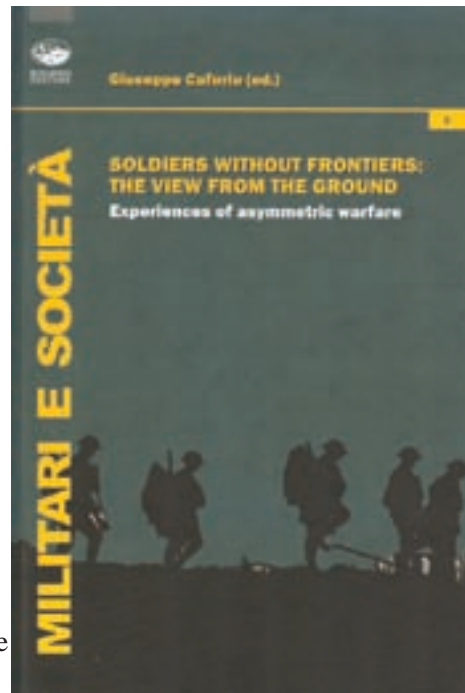
Giuseppe CAFORIO

Bonanno Editore, Gruppo Editoriale s.r.l.,
Acireale-Roma, 2013, 413 pages

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Soldiers Without Frontiers: The View from the Ground. Experiences of Asymmetric Warfare edited by Giuseppe Caforio, a reputed military sociologist, is issued at a time when the environment of military operations conducted by coalitions of the willing or by alliances can no longer be approached through conventional means given the breach of ethics and traditional war principles by the weaker opponents of the military forces.

The ideological framework of conflicts in nowadays' world, as well as the gap between an ethics based approach to warfare on behalf of civilized countries and the troubling lawlessness of the opponents cannot but lead to a number of challenges in human terms. This assumption underpins the overall aim of the book, which is that of "gaining a better understanding of the human aspects" (p.16) characteristic of asymmetric warfare. The means to achieve this is an empirical qualitative study undertaken by the ERGOMAS Working Group "The Military Profession". The latter focused on the experiences of the troops deployed by nine of the 19 countries that obtained approval to contribute to the research in military operations across the globe. Thus, as suggested by the subtitle of the book, special emphasis is placed on asymmetric environments like Iraq, Afghanistan, Arabian Sea without actually disregarding experiences in other areas like: Lebanon, Sudan, Chad, Mozambique to name just a few more.

The book consists of four parts that do justice not only to the research field, but also to the analysis of findings and countries supporting the endeavour. The highly professional coverage of the research framework and methodology in *Part I: Introduction to the research* sheds light on the extensive preliminary efforts made by the team to reach consistency in the discussion of the results of the findings, and hence ensures an integrative, osmotic approach to the chapters to follow.

Part II: Analysis of Findings highlights in its five chapters current topics that are of concern to the defense establishments across the globe that contribute troops to international missions. Moreover, they also allow the academics to glimpse at experiences that more often than not are captured by word of mouth and to discover an entire world of feelings and impressions that could only have been guessed as an inherent part of every human being. Thus, each of the chapters: “Experiences of Asymmetric War Missions” (Chapter 1), “Interaction with other actors” (Chapter 2), “Satisfaction and Motivation” (Chapter 3), “Psychological issues” (Chapter 4), “The ‘emerging’ concomitant issues in the conduct of asymmetric warfare” (Chapter 5) provide a theoretical background for the concepts proposed for discussion or geo-strategic information relevant for the understanding of the results analysis and for the conclusions drawn at the end. What is worth mentioning is that numerous reports of the interviewees are provided as quotes and that is an extremely valuable resource for any researcher willing to develop and test research assumptions related to the topics covered by the book.

Part III: Country chapters focuses on the nine countries, namely Bulgaria, Denmark, Italy, Philippines, Slovenia, South Africa, South Korea, Spain, Turkey, that supported the researchers with their endeavour. The personalized approach for each of the chapters in this part grants additional value to the approach and increased relevance to the findings.

The “*Conclusions and notes*” part manages to convey salient messages to the decision making bodies in charge of troops’ deployment in theatres of operations, relationships with other actors involved in the troops’ area of responsibility, operational experiences, training and education, rules of engagement, motivation and satisfaction, psychological stress.

The complexity of the research efforts underpinning the book renders itself to the scrutiny and further development of the proposed topics by its target audience. It is our firm belief that the valuable database of quotes on the experiences of the soldiers deployed in various theaters of operations is a useful resource for any scholar in search of further support for research efforts. Moreover, any decision making authority in the defense field can cross check the already available information with the validation made by the results discussed in the book. And last but not the least, the military themselves who have already been deployed or are about to can better understand their own assumptions and perceptions before their mission, their own and their colleagues’ experiences and reactions in a given environment, and the challenges to be met when the deployment time is over.

In conclusion, the book is an important step forward in the field of military sociology. Hence, it can be used as a reference, as a decision making enabler, and as a comprehensive resource for anyone with an interest in the transitions that defense establishments are prone to at human level and not only as a result of asymmetric threats.