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STRATEGIC VALUE OF NATO's INVESTMENT ON SCIENCE, TECHNOLOGY & INNOVATION (STI): MANAGEMENT OF INFORMATION AND KNOWLEDGE AS INTANGIBLE ASSETS

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This paper discusses the defence Science, Technology & Innovation (STI) investment within NATO. As a complex process it involves multiple stakeholders with common interest in development of knowledge through R&D activities, connecting current and future military capabilities. The objective is to generate and provide evidence-based scientific advice to decision-makers and deliver advanced solutions to national and NATO challenges. This process can generate valuable intangible assets for the Alliance in form of information and knowledge-based capital. The challenge for NATO is to manage and exploit the advantages of collective defence STI on behalf of its 29 members. The article approaches defence STI policies in comparison with power of politics and national as well as industrial interests. The attempt to quantify scientific knowledge as added value with significant return on investment unfolds the dynamics and vulnerabilities within NATO's corporate culture. Although complexity is the main argument and pre-assumption, multidisciplinary aspects (political, economic, social, technological, and legal) are carefully examined and explored, providing a comprehensive approach of its strategic value to the Alliance.

Key words: *Defence investment, NATO Science & Technology, Information & Knowledge Management, Intangible Assets, Defence Industry, Return on Investment, Added value, Emerging Military Technology*

1. INTRODUCTION

Almost 60 years ago the lunch of Sputnik 1 by the Soviets, caught the west and mainly the US by surprise in the technology race of a bipolar world.

In light of the intense competition on defence technology (i.e. use of nuclear power, atomic energy, intercontinental ballistic missiles, nuclear submarines, air & naval superiority, Command & Control, etc.), there was a profound incentive and emerging necessity for S&T[1] close cooperation within NATO. In the late 50s the Alliance[2] successfully investigated the option of broadening its security policy with non-military tools such as scientific collaboration (among others like political, economic and cultural cooperation). Until the end of the 80's, NATO was on high alert not only operationally but also in terms of science & technology. As the rivets in the Iron Curtain were beginning to pop, the years that followed can be described as years of unconscious sedimentation of this alert state. Fukuyama's "end of history" and the evident victory of economic liberalism, had an impact in the minds of decision makers with regards to investment in military technology and related R&D, and its role to the post-cold-war era. On the other hand, economic globalization and new global market rules had a great effect on industry worldwide that shaped the way international business was about to be conducted, equally affecting the defence industry that started to be more active in a quasi "borderless" market. This new environment was mostly seen as a business challenge or business opportunity. Furthermore, as today the digital revolution is changing the fundamentals of society as we know it, emerging technologies such as artificial intelligence, robotics, internet of things, biotechnology and quantum

[1] Science & Technology

[2] Clarification to the reader regarding the meaning of the word Alliance in comparison with NATO. The role of NATO is mostly to help Nations get their act together collectively and achieve their common goals. So, by "NATO" we mean the 30th entity, the NATO staff in the HQ, the Commands and Agencies, that collectively serve the Nations (29 Allies). And therefore "Alliance" as a notion include the Nations and NATO altogether.

computation (just to name a few), are providing not only unconventional opportunities (in the pursuit of conquering outer space for instance), but also unconventional threats (such as cyber-attacks) that create great challenges to the capabilities of any military power. NATO's Science Technology & Innovation (STI) is directly related to its ability to adapt to the constantly changing global environment, in relation to broader aspects such as military and geostrategic interests, emerging technology development, local and world politics, legal challenges, global economic situation, and socio-cultural metamorphosis.

2. THE CHALLENGES

As the technology race after the lunch of Sputnik1 by USSR intensified the following was stated by Dr von Karman in 1950 (Wattendorf:1969, p.24), which could have been as well mentioned today by NATO STI community.

> *I came to the conclusion that the mobilization of science for research useful for defense, is yet in a very rudimentary stage in most countries. It appears that the mobilization of scientific effort in Continental Europe can be effective only if the countries work in close collaboration with one another.*

Since then, a series of efforts have been made by the members of the Alliance to bring together the greatest minds of the scientific and engineering community to leverage their resources for the benefit of their common goal of scientific & technological superiority in the defence sector against its adversaries.

During the last two decades, military technology has become more accessible to the public due to its interdependence with the technological advances in the civilian domain. NATO (through CNAD[3]) has tried to coordinate efforts and initiatives of collaboration between military and industry in order to explore innovative solutions that will maximize returns in the form of military advantage and technological edge. This bottom-up approach will help nations introduce new innovative ideas to NATO. STO[4] tech-trends, technology watch-cards, emerging technology assessment tools and on-line crowd-sourcing forums (such as the ACT[5] Innovation Hub), are some of the today's means of harnessing innovation activities within NATO. These tools highlight potentially disruptive development in S&T for the Alliance and ensure the convergence of common efforts to the most important areas of research (STO Tech Trends Report 2017). Furthermore, as China developed capabilities approaching parity to US (and by implication NATO), collaboration of the STI stakeholders became a crucial necessity for the Alliance.

At national level, governments develop innovation strategies for commitment to invest in new technologies. Among the most recent examples is the US 3rd Offset Strategy and the UK "Defence Innovation Initiative" which have the potential to bring high value deliverables to national defence and in effect, to NATO capabilities.

We can presume that costs and benefits of an investment~~,~~ are the most important factors for the decision making on NATO STI investment. Accordingly, sharing and pooling of resources can potentially achieve significant economies of scale. The catalyst~~,~~ is the increasing complexity of networks of state and non-state actors that impose asymmetric threats, in combination with the accelerating change in the strategic environment. Complexity, in sense of increasing uncertainty over time, makes decision-making uncertain in the long-term. Smart decision making on targeted STI defence investment is vital for the generation of new knowledge in technology, and the responsive confrontation of such complexity. There are however several drawbacks to consider, such as high development costs (in relation to size and share of the niche market), various regulatory hurdles (based on national restrictions), and technology ethics on responsible innovation that have an

[3] Conference of National Armaments Directors
[4] Science & Technology Organization (NATO)
[5] Allied Command Transformation

impact on social acceptance of disruptive technology, despite the economic benefits.

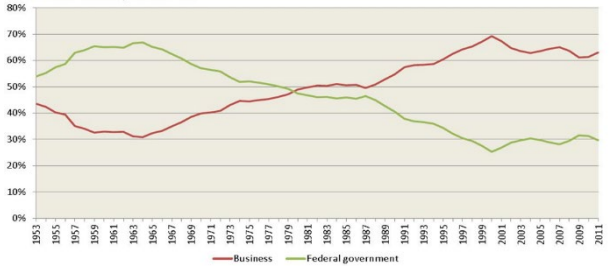
Although one of the major objectives for the Alliance is to increase the transparency and accountability of various investment programs (including those related to STI), the positive results are not yet fully visible, due to factors such as complexity in terms of corporate culture, shortage of resources, and changing mindsets and attitudes due to challenges of disruptive change. These are only some of the causes that can lead to transformation failure.

According to the OECD[6] (2016), prior to 1970 nearly 70% of all business R&D (in the largest OECD countries) was directly funded by government. Today this figure is close to 10% (the US example of Figure 1 is a classic one). The change of this model fits the needs and requirements of its time in light of the privatization of most of the defence industrial sector of the western world during the last decades. As a result, nations today enjoy the benefits of lower costs and economies of scale due to this competitive environment.

Non-tangible forms of capital, such as knowledge-based capital (KBC), are increasingly the largest form of business investment. Assessing their role for economic growth and value creation for firms, requires effective measurement of such assets. We can refer for example, to R&D, intellectual property assets (such as patents, trademarks and designs), software and databases, or brand equity, firm-specific human capital (including training) and organizational know-how.

Defence research and innovation today is correlated more with the technology developed in private sector and the latter is the one driving the development of cutting edge technology that the military is applying on new concepts for defence purposes. This strong relationship between defence and private sector creates a scientific interdependency between military advanced technology and the civil oriented R&D.

Figure 1. Source of funds in USA, % Share of Public and Private Sector, 1953-2011.



Source: A. Hunter & R. Crotty, "Keeping the Technological Edge", Center for Strategic & International Studies (CSIS), September 2015

The free exchange of ideas is the academic way, (and experts believe it's the best way) of accelerating the progress of IT and Artificial Intelligence. Since the industrial revolution, we have experienced the first stage of globalization based on reduced trade costs. The innovations however remained mainly within the most developed or industrial countries (G7) ending up in a "great divergence" (1820-1990) due to the still high communication costs (Baldwin:2016). Around 1990 these costs started falling which led to people and businesses from different countries connecting and paving the way to the new globalization. At the same time, the collapse of the iron curtain that released the pressure of defence expenditure from NATO countries is not the only causal event. The ICT revolution creates an incredible information and knowledge spillover effect, among countries regardless to their economic power, connecting high-tech with low-wage nations through new pipelines of knowledge flows. It is by no coincidence, that during the same period national defence STI shifted even more (not for all member states equally) towards the private sector and industry and away from government-controlled research institutes.

Contrary to NATOs confidentiality in sensitive military requirements involving disruptive technology, in some cases industry have started to loosen up their secrecy by publishing journal articles and engaging academics on far-reaching research activities. Regarding artificial intelligence (AI) for

[6] Organisation for Economic Co-operation and Development

example, many companies such as Google and Apple are deciding to release and share research data in order to further foster the deep learning and AI within the global scientific community. This technology applies to many defence oriented technologies (drones, navigation & targeting systems, robotics and software development) proving the vital role of industry engagement in STI decision making today.

Yet, secrecy of inventions is not something new for NATO and there is a related agreement signed back in 1960 ensuring the mutual safeguarding of defence related inventions for which applications for patents have been made. This type of limitation and prohibition imposed to NATO countries may have caused some difficulties in the collaboration between member states. The secrecy measures of this agreement are today still valid and they are the means of safeguarding patent rights related to classified military inventions.

Since for NATO the intelligence of military technology is also a geostrategic issue, this open window of knowledge sharing by the industry, gives the opportunity to the STI community of the Alliance and its decision makers to have a more complete picture of the future technology and to be able to define with more precision the future requirements of its forces (WIRED:2016). The new reality of knowledge offshoring through new global value chains in combination with the new world trade policies and international agreements (WTO[7] and multilateral free trade agreements) have created an environment where international competition does not only apply to the final product but also to the jobs in the manufacturing stage. In that sense specialized skills don't guarantee future jobs.

3. DYNAMIC POLICIES IN A DYNAMIC ENVIRONMENT

3.1. The Shift of Dynamics

It becomes evident that as the nature of the market becomes more dynamic, it is affecting all business sectors, including defence industry. Changes are more sudden, individual, more unpredictable and in many cases more uncontrollable, resulting in cooperation agreements between manufacturers of different countries and mergers & acquisitions. As a consequence, defence industry, research institutes and the academic world are more internationally connected.

The recent policy trend in R&D and innovation tax incentives and the impact of such tax relief on the cost of R&D is worth mentioning. According to a STI Outlook (OSCE/World Bank Group: 2016), governments are increasing the tax incentives, either income-based or expenditure-based, in form of income tax (corporate or to individuals), social security contributions, VAT, preferential import tax rates, land & property tax etc. Hence, industry can be more flexible in identifying the ideal mixture of policies for the maximization of value added and ROI on STI investment. However, not all NATO countries apply the same tax incentive policy, and NATO (as a tax-exempted organization) is still called upon to fill those gaps and provide STI solutions within a collaborative framework.

In the NATO context, close collaboration with industry is crucial in order to be able to define its requirements and avoid the risk of a-priori development of the capabilities in isolation. The former Assistant Secretary General (ASG) for Defence Investment in NATO (Patrick Auroy) had identified some problems in this process. First, militaries embrace new innovative break-through ideas too fast, without any real assessment of the effectiveness to the required capability, while industry realizes that such investment is not only impractical but also economically inefficient. A second problem identified, was the paradox of a company assisting NATO in technically framing the right kind of tender and then finding itself excluded from bidding on it, on the grounds of its advance knowledge. (IHS Jane's, Vol. 53:2016). Providing more opportunities to industry for experimentation of new concepts and technology, would allow NATO, from a risk- averse, to become a risk-management organization; a paradigm-shift that can also change the status quo of **NATO-**

[7] World Trade Organization

industry cooperation (NATO-Industry Forum:2015). The potential strategic autonomy of EU on defence as collective action in conjunction with possible impacts of Brexit and the focus of the US on burden sharing among allies, creates an even more dynamic environment.

3.2. Trade implications

In the information age of the 21st Century, the use of data is as important as energy security and has the potential to be a powerful force for global growth, sustainability, democratization and societal progress. Big Data is more than technological hype; it has the potential to significantly transform military functions such as intelligence, command & control and logistics, enabling effective and faster military decision making. Accumulated scientific and technological data, is converted to **structured information** and potentially to a **new form of value** as "knowledge", through exploitable intellectual property (patents, licenses, copyrights, designs).

There are significant global interdependences of trade in value added, with regards to the relationship between exports and final demand, which is translated into jobs. As free trade agreements also make defence related business more flexible in an open market, member nations with strong defence industries (such as USA, Germany, UK, France) benefit from exports to other allied countries, which reflect their employment dependences. In effect, a big percentage of military technology related jobs in one country is sustained by foreign demand for its final defence related products. This can impact the decision making on defence STI investment and can influence political decisions at NATO level.

Large enterprises within EU are affected by export controls more often than Small-Medium enterprises (SME) because larger companies often cooperate with research institutes & academia outside the EU, and that intra-company transfer of dual-use technologies is also subject to dual-use export controls, (SIPRI Report: 2015). Regarding research (basic and applied science), where the basic product is knowledge in form of data and processed information, the limited (or non-existent) communication barriers have now given the green light to free flow of scientific information between NATO members. In Europe, apart from the Intellectual Property Rights (IPR), there are limited export related regulatory barriers which are arranged via respective non-disclosure agreements. In the US, IP and export control regulations and laws are still very strict with the use of International Traffic in Arms Regulations (ITAR) of the Department of State, and Technical Assistance Agreements (TAAs). At development and prototyping stage, export licensing for STI products becomes more relevant. The importance of establishing an EU–US trusted community of companies for transfer of defence related products has been pointed out in various NATO studies (TADIC SG-180: 2014).

Until a few decades ago, defence technology was more distinctive compared to the technology for civil use and thus such technology had more unique or **niche customer base**. Today this technology is related more to a commercial equivalent (mainly IT, AI and robotics related). The effects of knowledge spillovers of public research have high priority to allies (through patenting and publication IP), but also to the adversaries through reverse engineering or imitation. Protection of IP rights and industrial interests are becoming crucial factors for any decision-making process on defence STI investment. China for instance, is suspected of having stolen approximately $1 trillion USD of intellectual property via cyber-attacks. (The Mackenzie Institute: 2017). There is no doubt that industrial intelligence driven by political intentions, has played a major role in the history of defence industry.

But can industrial espionage be as effective as R&D? According to a research paper by E. Meyersson and A. Glitz, East Germany had "*enjoyed significant economic returns from its state-run industrial espionage operation.*" (C. Nickisch, Harvard Business Review: 2016*).* It is not only just the espionage, rather the whole scientific and technical knowledge transfer (with reverse engineering), as well as the recruitment of the best scientists in a post-war period, such as the best German brains were recruited by the US at the end of WWII.

Major political changes such as government administration changes of key stakeholder countries or political instability due to upcoming elections in an environment already troubled by global immigration and financial turbulence, inevitably affect the decision making in NATO, influencing as well the political position of all member countries. To paraphrase the words of Metternich, "**when USA sneezes, NATO catches a cold**".

Extending the challenges to the domain of education, NATO may find difficult~~ies~~ to attract highly skilled, educated and experienced scientists as the competition in the global market provide attractive options that have driven the vast mobility of scientists and skilled engineers during the last decades. Organizations, research institutions, multinational enterprises or even SMEs manage to attract the best experts in the market by offering very competitive salaries, career advancements, and research opportunities to work with prestigious peers in excellent research facilities, providing autonomy and increased freedom to carry out research and experimentation. NATO collaboration programs, special facilities as well as national research centers are offering analogous (but maybe not as competitive) incentives depending on their R&D priorities in an effort to use skills of highly educated people to leverage innovation and R&D.

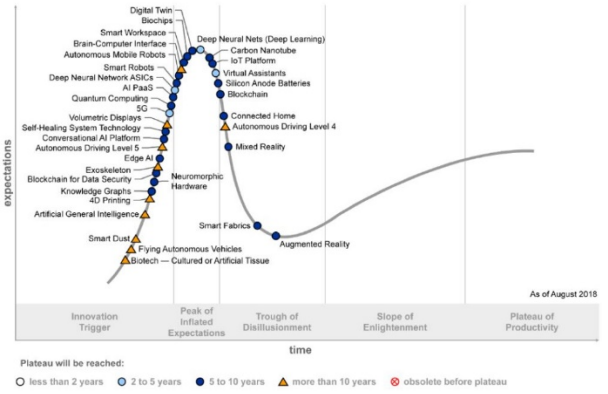
Experimentation can lead to valuable results, regardless of the outcome (positive or negative). It is therefore of great importance for scientific results to be reproducible and available to the scientific community despite their outcome. It has been noticed by the academic community (especially in medicine and biology) that negative results are not published, resulting in misleading scientific evidence. In the case of emerging dual-use technology, it is important for all scientific results to be available, especially if the technology requires accuracy and detailed specification that affect the precision of a new weapon or command & control system.

Scientists in either public sector or industry are interested in promoting their work through successful scientific publications. The phenomenon of publication bias has been quite common and, to an extent, understandable as we live in a competitive market where private enterprises intend to maximize the outcome of their efforts. But by not publishing or making available negative results, we are disrupting the evidence-based science. If this also happens in industry and military R&D programs, then this may end up disrupting the potential disruption of a technology with unknown consequences. Similar concept applies to S&T patents as people today invent more per R&D euro or dollar. Hence, patents are not an afterthought of creating a new product anymore but are at the beginning of the R&D effort.

3.3. Time Vs Expectations

The speed of transfer of scientific knowledge in addition to the speed of communication and transportation~~,~~ has made ~~it~~ possible for adversaries to obtain technology that disrupts the current security status quo on a local and global scale.

Figure 2. Gartner Hype Cycle for Emerging Technologies, 2018



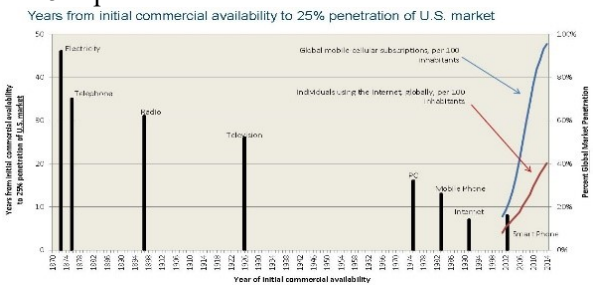
Source: Gartner © 2018, Inc

Most emerging technologies (according to Gartner) follow a pattern from their initial innovation trigger until their final mainstream adoption, through a "hype cycle" that uses time and expectations as the two main parameters. It is worth mentioning that in comparison to the 2016 and 2017 Hype Cycles, emerging technologies such as drones, AI, machine learning and block chain move fast on the hype cycle path, proving the dynamic relationship between time and expectations.

This trend presents promising technologies with potential high degree of competitive

advantage, and not surprisingly it is in correlation with NATOs' tech trends of the last years. And if we think of the digital revolution and fall of communication barriers of the last decade, one may conclude that civil and military technology has developed into a **converged path** that makes it difficult to distinguish their dynamics as defence industry in private sector is todays driving force.

Figure 3. Years from initial commercial availability to 25% penetration of U.S. market



Source: A. Hunter & R. Crotty, "Keeping the Technological Edge", Center for Strategic & International Studies (CSIS), September 2015.

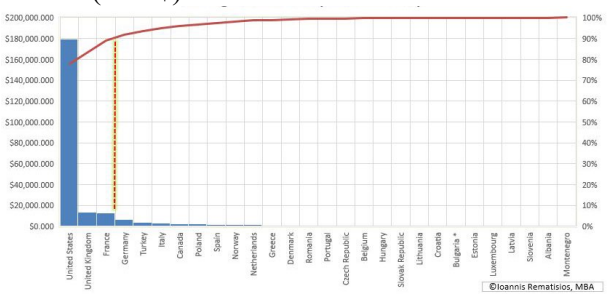
Whether it is a multinational enterprise or a local SME or a start-up, STI results can come by surprise and totally unexpected by the traditional strategic view. From the above trend we may suggest that penetration of the market by new inventions and technologies becomes dramatically faster. In addition, if we consider the fast acceleration of phenomena due to the **low communication costs and the knowledge spill-over effect** among industries, states and non-state actors, the task to accommodate and coordinate STI activities (let alone the decision making on the respective investment) within NATO, is even more challenging and requires a vision of micro and macro horizons simultaneously as part of a change in culture.

4. MEASURING THE UN-MEASURABLE

The intention of STI activity is not to yield immediate tangible profits and since it carries considerable risk, its measurement becomes rather problematic as it contradicts the basic concept of investment and its decision making within an organization. NATO has the ability to transfer those risks to external stakeholders, such as defence industry and the private sector, but at the same time this process might become problematic as well if it is not deployed with adequate operational analysis and effective defence planning process at strategic level.

At the Warsaw summit (July 2016) nations confirmed their agreement from previous summit to reinvest in defence at least 2% of their gross GDP, including guideline of spending 20% of the defence budget on new equipment and R&D. Despite national efforts, there is still much work to be done in order to have a more balanced sharing of the costs and responsibilities. In the Pareto chart below, referring to the average of the last seven years, in absolute number (million USD), three nations (USA, UK & France) cover the 90% of the total expenditure on equipment & R&D.

Figure 4. Pareto Chart - Defence Expenditure on Equipment (including R&D) – Average 2010-2017e[8] (in M$)



How does the "politics of 2%" affect defence R&D? According to Carnegie (2015) it has been the subject of many critics as it measures input instead of output. It is believed that 2% says very little about a country's military capabilities and level of readiness, deployability, and sustainability. Both politically and militarily speaking, it cannot assure the willingness of the country to deploy forces and take risks.

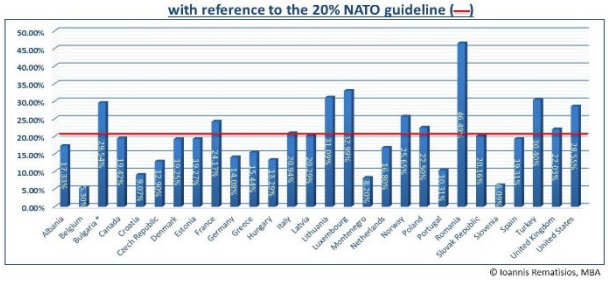
And the question remains non-ephemeral: Do the member states spend their resources wisely? Jan Techau (Carnegie:2015, online) goes one step further. The 2% "says nothing about the investment or research and development ratios in the budgets, which are

[8] Figures for 2017 are estimates

usually counted among the most valuable indicators of whether a country is serious about its defense effort", doubting its ability to quantify the share of risk. The most noteworthy political risk, related to the 2% (and related R&D expenditure target), is that any failure to meet the target will potentially have detrimental impact on the credibility of the Alliance.

According to a European Commission Press Release (30 Nov 2016), the US spent on defence (in 2015) more than twice as much as the total of EU countries who (for the same year), actually decreased their spending by ~12%.

Figure 5. Percentage (%) of total defence expenditure (2017e) on equipment (including R&D) with reference to the 20% NATO guideline (—)

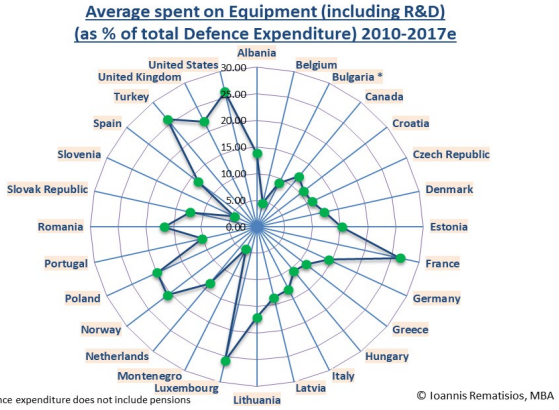


Source: Data extracted and processed by the author, from the official NATO website (http://www.nato.int/cps/en/natohq/news_145409.htm) (e=estimated)

The above chart[9] provides official available data of the year 2017 estimations of defence expenditure on equipment and defence R&D with reference to the 20% NATO guideline. There is a diverse distribution among member nations. For instance, we notice figures as low as 5-6% for Belgium and Slovenia and above 30% for Lithuania, Luxemburg and Turkey, while Romania is considered an outlier with great volatility (comparing to data of previous years). National priorities and strategies can explain most of the fluctuations. For a more complete picture we can examine the averages of the last 7 years in the radar chart of figure 6. The figures in percentages are lower showing that in general, member nations are now increasing their respective budgets, but the diversity of the percentages and volatility on an annual basis is still evident.

[9] For NATO data processed by the author, see table in Annex I.

Figure 6. Average spent on equipment (including R&D) as % of total defence expenditure (2010-2017e)



Source: NATO official data (https://www.nato.int/cps/en/natohq/news_145409.htm), processed by the author. (e=estimated).

4.1. Knowledge as added value for NATO

What can be considered as **added value** of defense STI expenditure for NATO?

Added value of multinational collaboration on STI in a NATO framework comes from a number of opportunities.

- **Pooling and sharing** to address challenges that are **over and above** those that could reasonably be handled using individual national resources.
- **Determining the niche market size and market share** in the industry, through NATO programs on specific technology affecting the development cost per unit and the supply & value chain.
- **Promoting standardization and interoperability** by delivering coherence in a trans-Atlantic perspective and **minimizing duplication of effort** and military capabilities. (~80% of defence procurement in EU states is run on national basis) (EC: 2016).
- **Leveraging existing multi-national public-funded research programs** in dual-use technology perspective, **bridging** North America and Europe.

Added value can be identified not only in innovative weapon technology but also in innovation applied in processes such as logistics. For example, the Integrated Munition

Health Management (IMHM), is a systematic process for enhancing the intelligent management of life-cycle of munitions that provide benefits to NATO countries in terms of cost, safety, performance, interoperability and availability of munitions. STO has successfully demonstrated the **technological maturity** that has been achieved in this field.

New scientific & technological **knowledge** is considered as added value for the fulfilment of strategic goals & objectives of the Alliance. Since knowledge is discrete, it requires large fixed costs. This means that the price of research & development (either for military purposes or not) is usually much higher than what consumers (or nations in the case of NATO) are willing to pay. It is therefore important for organizations from different sectors to be able to share and exchange ideas on a basis of common values.

If only 5% of innovative ideas in industry mature into **revenue-generating products**, and it could take four years until we see their impact, (Street: 2016); then NATO would gain great benefits from such activity. On the other hand, according to a RAND (2015) report for UK defence, research shows a time-delay of approximately 15 years between R&D investment, which impacts the quality of defence equipment.

Sensitive or classified information and knowledge is important for the competitive advantage of a firm. This **protected knowledge** is difficult to convert into added value and to measure its tangible results upon delivery. Valuation of returns on break-through innovative projects is better performed when accompanied with respective risk assessment and monitoring.

4.2. Intangible assets and Knowledge ROI

An important aspect of the notion of added value, is the de-risking through the exploitation of shared information and knowledge. Learning what the other allies do and how they do it, creates the basis of standardization of systems and equipment, and eventually interoperability of NATO forces in future operational environment.

CNAD, 52 years from its establishment (1966), has the mission to enable multinational cooperation on delivery of interoperable military capabilities, and to engage industry on defence planning and development in order to cultivate the solutions for the foreseeable future security challenges. Pooling of resources will consequently lead to **pooling of markets**. The engagement of industry (including startups) gives access to new technology in the private sector that could potentially become dual-use.

The **stock of scientific and technical knowledge** is increasing proportionally with the rise of the STI investment. As a result, this knowledge reduces future R&D costs and most importantly it increases the spillovers from current to future R&D activities (Coe, Helpman, et al.: 2008). In the NATO context this effect crosses national borders of member nations providing economic benefits through the defense industry.

Industry in return, can calculate its economic value added by using its capital change and the net operations profit after tax. Nevertheless, reliable data from NATO accounts is essential for any kind of calculation. The adoption of **IPSAS** 31 standard[10] by NATO reporting entities, has significantly helped the **transparency and accountability** of intangible assets. According to the standard, NATO reporting entities should capitalize integrated systems and include research, development and implementation (including both software and hardware elements).

Due to the specific nature and use of the item of intangible assets, shorter depreciation lives should be applied and useful life per asset category should be enclosed in the financial statements. Additionally, the reporting entity should capitalize other types of intangible assets including copyright, IP rights and software development. (NATO Accounting Framework: 2016). What is crucial is the implementation of the policies and standards.

In the US for example, the Best Buying Power (**BBP 3.0)** initiative is designed to improve the DoD's performance. R&D efforts are conducted by government labs, non-profit research institutions, and defense companies

[10] International Public-Sector Accounting Standards

(both large and small). Innovation also comes from the commercial sector and overseas. Successful utilization of these sources of innovation and technology, does not depend on the policy but on the professionalism of the people who implement it (US Under Secretary of Defense AT&L: 2015).

The **returns** on NATO defence investment on STI could be separated into two types. The first concerns **tangible** benefits to the member nations that are mostly indirect via savings on internal R&D costs, or technology spillover effects and technology transfer across member nations (boosting national economies and employment rates) or via sharing and pooling of resources for common projects. The second is merely political and geostrategic, where the benefits are considered rather **intangible**, in form of achieving strategic goals and establishing/maintaining long-term peace in NATO's joint area of operations. Both types of benefits are equally important since the first provides the incentives for NATO nations in today's new world order to achieve the collective strategic goals of the second.

If the Alliance were to attempt to evaluate its intangible assets (technological innovation, or even copyrights and patents) the process would be quite challenging. Civil corporations would convert future benefits to a discounted amount by either capitalizing a single period of benefits or by discounting a future stream of benefits. Tools such as the weighted average cost of capital (WACC) or the internal rate of return (IRR) to the investor are income models that cannot have the same meaning for a non-profit intergovernmental organization. Companies also measure their return on their intangible assets such as technology R&D, by considering the average ROA and ROI indexes of the industry, the Net Present Value (NPV), or even the Pay-Back-Period.

NATO STI however, is not actually competing with industry, as its purpose is different. We can assume that member nations (as the principal stakeholders) should not expect any tangible profit although in today's global financial environment they do set some minimum tangible loses. For the European side of the Alliance, such measurements are more complicated than the other side of the Atlantic. According to the European Commission, each euro invested in defence generates a return of 1,6 particularly in skilled employment, R&D and exports (2016). This is a generic statement that represents measurements of average figures. If for instance, major international companies such as Lockheed, BAE Systems, Thales, Raytheon, General Dynamics, Leonardo, (just to name a few), are succeeding in gaining major NATO defence contracts, this could be converted indirectly into **returns on investment** for the respective nations through their national defence industry (contribution to tax returns, unemployment rates, etc.). This argument would apply mainly to the nations that have significant and competitive defence industry. Defence offsets on the other hand, can be a contractual burden for the exporter with disadvantages on employment, co-production and technology transfer issues. For "smaller" member nations, national contribution to NATO STI programs does not reflect any relatively significant tangible returns. In their case, the actual benefits come from **access to scientific knowledge**, newly developed technology, and **transfer of the know-how** as shareholders of the stock of this knowledge. R&D returns apply indirectly over time as that technology increases collective defence capabilities, potentially applied in an "Article 5" case scenario, (commitment of mutual protection and solidarity within the Alliance).

With regards to rate of returns on public research, according to most studies, the overall value that is generated, is 3 to 8 times the initial investment over the entire life-cycle of the investment. Public sector research has a positive effect on productivity, and according to a study on major OECD countries for the period 1980-1998 (Dominique Guellec and Bruno van Pottelsberghe de la Potterie: 2001), the long-term elasticity of government and university research on productivity is ~17%. In the same study, the effect of universities is higher because government scientific laboratories usually have non-economic objectives such as supporting defence (Georghiou:2015).

After the product development and prototyping phase, defense production seems notorious for its general inefficiency and high costs which have inevitable consequences on

productivity (Draca, 2012). If it is so common at national level, we can imagine the complexity at NATO level. This phenomenon partly explains the behavior of member nations and their skepticism on committing and allocating funds in common STI investment.

5. CONCLUSIONS

Trying to forecast the cost curve of a new technology in the defence sector is partly a derivative of science, partly a kind of art charisma of the individual, and partly a coincidence of events with a fortunate interpretation of external factors. The Alliance has a great challenge to capture all three aspects. The STI related expenditure although it is of high long-term strategic value for NATO, highly depends on national decisions and priorities. This expenditure, therefore can have a big dose of volatility and uncertainty based on multi-disciplinary factors in the framework of a dynamic political, economic, social and technological environment.

Returns on STI is not a matter of profit or managing earnings as it might be the case for industry and private sector. The actual capitalization of defence STI within NATO is the confirmation of the added value to the Alliance and its sustainable military capabilities that ensures military deterrence. ROI on scientific research is the accumulated knowledge that is created among the scientific community. Information & knowledge management plays a critical role at this stage. As a result, scientists and engineers get closer to something innovative, to a breakthrough technology that might be disruptive for the military environment, or perhaps closer to the "next big thing". Effectively this knowledge becomes a precious intangible asset for NATO, in form of intellectual capital, and capitalization of the intangible returns can only be achieved in the "market" of the future battlefield (land, air, sea & cyber). The challenge is to maintain this type of asset that derives from **corporate culture**. The shift of the creative part of STI investment towards industry, creates a risk of losing its knowledge capital, or what Arthur (*2009, p.160*) is calling **"*shared unspoken culture of common experience*"**.

Today, large global military powers are in a new armaments race that goes hand-in-hand with a military technology race affected by rapid developments on private or public sector, which contradicts the skepticism of many member nations, especially those suffering from global economic turbulence. This contradiction represents a contrast of economies of scale versus societies of scope. Because this complex and paradoxical situation requires policy makers and national decision makers to ensure **maximum value for money** for their tax-payers, it is for the benefit of the Alliance to seek synergies and productive collaboration on common STI programs.

Nevertheless, as today's scientific development reflects more dual-use technological achievements, STI investment contributes also to social returns, in form of growth, productivity, consumption rates and employment rates, due to technology spillover and knowledge transfer. On the contrary, in a disruptive global environment, use of advanced technology by non-state actors has increased exponentially, leading to loss of **government monopolies** over military technology. Finally, exploitable information and knowledge in form of intangible assets, creates a new environment that disrupts the conventional processes in STI defence investment.

The mission to provide secure environment to NATO allies is not a business strategy or a political agenda and is not compared with any political cost nor with any lost opportunity cost. The members of an enlarged Alliance are once again called upon to proactively work together on defence STI and ensure maximization of efforts on scientific research and innovation for defense purposes. Today, in a socio-economically unstable world of rapid-pace technological change (driven by consumer demand), a robust management of intangible assets is required by NATO to defend its members from another technological surprise.

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The authors take full responsibility for the contents and scientific correctness of the paper.

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Annex I

Table 1.

Distribution of defence expenditure on Equipment (including Defence R&D) 2017e

NATO Member	% of total Def_Exp 2017e	Amount (million $) of_Exp on Equipment (Actual) 2017e	20% of Def_Exp (Expected) 2017e	Δ amount 2017e Actual Vs Expected	Δ in % (2017e) reference to the Expected Guideline
Albania	17.33%	$26.3358	$30.3935	-4.057618125	-13.35%
Belgium	5.30%	$228.0764	$860.6525	-632.5761133	-73.50%
Bulgaria *	29.54%	$242.4913	$164.1945	78.29676757	47.69%
Canada	19.42%	$3,946.1046	$4,062.9567	-116.8520846	-2.88%
Croatia	9.07%	$192.1346	$130.2465	61.88812081	47.52%
Czech Republic	12.90%	$273.1877	$423.7042	-150.5164939	-35.52%
Denmark	19.25%	$705.9716	$733.4756	-27.50399174	-3.75%
Estonia	19.27%	$99.9645	$103.7330	-3.768439642	-3.63%
France	24.17%	$10,714.2718	$8,866.5678	1847.703973	20.84%
Germany	14.08%	$6,035.7010	$8,575.0247	-2539.32371	-29.61%
Greece	15.44%	$705.9791	$914.4754	-208.4963221	-22.80%
Hungary	13.29%	$180.1037	$270.9921	-90.88846308	-33.54%
Italy	20.94%	$4,722.6496	$4,511.5646	211.0849498	4.68%
Latvia	20.29%	$98.7341	$97.3164	1.417711875	1.46%
Lithuania	31.09%	$244.1701	$157.0947	87.07533378	55.43%
Luxembourg	32.99%	$91.5845	$55.5223	36.06227172	64.95%
Montenegro	8.20%	$5.8916	$14.3635	-8.471971701	-58.98%
Netherlands	16.80%	$1,583.8644	$1,885.2699	-301.4055012	-15.99%
Norway	25.65%	$1,618.5389	$1,261.8318	356.7071455	28.27%
Poland	22.50%	$2,249.4081	$1,999.4574	249.9507172	12.50%
Portugal	10.31%	$280.9388	$545.2092	-264.2704193	-48.47%
Romania	46.49%	$1,786.9952	$768.7486	1018.246647	132.46%
Slovak Republic	20.16%	$219.6478	$217.9560	1.691760902	0.78%
Slovenia	6.09%	$28.1400	$92.3596	-64.21953795	-69.53%
Spain	19.31%	$2,250.4874	$2,330.9054	-80.41803489	-3.45%
Turkey	30.40%	$3,743.6749	$2,463.0508	1280.624044	51.99%
United Kingdom	22.03%	$12,087.6564	$10,972.5985	1115.057863	10.16%
United States	28.55%	$195,087.0790	$136,682.8000	58404.279	42.73%

* Defence expenditure does not include pensions.

- Amounts are in current prices and exchange rates (NATO Press Release, PR/CP(2017)111, 29 Jun 2017, https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2017_06/20170629_170629-pr2017-111-en.pdf)
- NATO uses US dollars (USD) as the common currency denominator. Exchange rate applied to each Ally is the average annual rate published by the International Monetary Fund (IMF) and estimates from the OECD for the current year.
- Conventional sign: e = estimated

Note to readers (as per source report):
Iceland has no armed forces. For nations of the Euro zone, and Montenegro, monetary values in national currency are expressed in Euros for all years. Estonia adopted Euros from 2011, Latvia from 2014, and Lithuania from 2015.
To avoid any ambiguity, the fiscal year has been designated by the year which includes the highest number of months: e.g. 2016 represents the fiscal year 2016/2017 for Canada and United Kingdom and the fiscal year 2015/2016 for the United States.
Because of rounding, the total figures may differ from the sum of their components.

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THE POLITICS OF ARMS TRADE: THE "FORGOTTEN WAR" IN YEMEN

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This paper focuses on the political implications of the arms trade and transfers related to the conflict in Yemen, wishing to emphasize the nature and the impact of arms exports to states involved in ongoing military conflict to both the outcome of the military intervention as well as to the international norms regulating arms exports. Labelled as 'the forgotten war', the conflict in Yemen has failed to raise sufficient international attention as to amount for the scale of the humanitarian and political disaster that encompasses the country and negatively impacts the evolution in the region. Although the legitimacy of the conflict has generated a considerable amount of legal and academic debate, which was doubled by the numerous international organizations drawing attention to the worsening humanitarian situation, these actions have failed to produce enough momentum such as to consistently alter national practices related to arms exports and to determine a collective response under UN auspices.

Keywords: *arms trade, military intervention, Yemen, humanitarian.*

1. INTRODUCTION

Constructivist literature in International Relations Theory concerned with norm creation and enforcement builds on the idea that international and regional norms set standards for the appropriate behavior of states [1], with national practices influencing and being connected to the international ones. Norms are used as a tool for understanding the motivations involved in the decision-making process of the states, especially when rational choice perspectives seem to be ignored. With a particular interest in the role norms play in political change, this approach sheds new light on the decision-making process involving arms transfers, looking at how the identities and interests of the states are constructed in the process [2].

Drawing on these constructivist assumptions, this paper focuses on the role played by the outcome of the conflict in Yemen on the norms and regulations that dictate state behavior when it comes to authorizing and conducting arms exports. Widespread violent conflict in Middle East has raised concerns about serious human rights abuses and a growing humanitarian toll, sparking a political debate in Western Europe and US about the necessity to restrict arms sales in the region. Using the war in Yemen as a case study, this analysis is aimed at determining whether international public pressure and debates have altered national policies regulating arms trade and exports, as well as international behavior on the part of the states involved in the conflict.

The paper starts with a brief overview of the evolution of the conflict in Yemen, emphasizing the main causes that have led to the current unfolding of events. Then it proceeds with outlining the characteristics of the military intervention in Yemen, conducted by a Saudi-led coalition starting March 2015, emphasizing the main elements of the debate related to the legitimacy and the legality of the intervention. The next section explores the US and UK national practices related to the arms exports towards Saudi Arabia, as well as the official reaction of the governments of these countries to accusations of improper and illegal use of the weapons by their trade partners in the conflict in Yemen. Finally, the last section of the paper addresses the conclusions that can be drawn from this case-study approach of the mechanisms that regulate arms exports and trade.

2. BRIEF OVERVIEW OF THE EVOLUTION OF THE WAR IN YEMEN

The recent history of Yemen has been increasingly marked by tensions and violence. It is even difficult to name a starting point that

would allow for an objective presentation of the facts, unless we take into account the evolutions in the entire region. Although the complexity of the political situation and the dynamics of forces at work in this conflict seem hard to capture, the current state of affairs finds its roots in three main sources.

The first source of the conflict is the somehow artificially created internal situation of the country. A recent political creation, the state of Yemen was formed in 1990, when the governments of the two neighboring states - South Yemen and North Yemen - decided to unify their countries. This decision came as a surprise not only for the international observers, but also for the Yemeni people, creating a difficult start in the formation of a national identity. The efforts of the ruling government, controlled by the then-President Ali Abdullah Saleh, to strengthen and build legitimacy and support for the political system of the newly formed state, were severely damaged by the economic difficulties and worsening living conditions, aggravated by the restriction of foreign aid. As such, the conflict between the northern and the southern political leaders worsened and escalated into a fully blown civil war, with an intensity varying from moderate to severe in the following years [3].

The second source of the conflict in Yemen is connected to the waves of protests and demonstrations that have swept the entire region of Middle East starting with 2011, events which have come to be known as the 'Arab Spring', or, alternatively, 'Arab Awakening'. These protests reverberated into Yemen, with thousands of protesters gathering in the capital Sanaa asking for President Saleh to resign, as well as condemning poverty and official corruption. By November 2011, a political initiative negotiated under the auspices of the Gulf Cooperation Council (GCC), the UN and the EU instituted a long-term political transition process, with Saleh peacefully transferring power to his deputy, Abd Rabbu Mansour Hadi. However, the internal strife continued, marked by the tensions of the sectarian, tribal and economical divides in the country.

Finally, the third source fueling the conflict is the existence of safe havens for terrorist groups and organizations. The chaos and turmoil in the country have opened the way for organizations such as Al-Qaeda in Arabian Peninsula (AQAP) to expand their presence and build legitimacy on the ground. AQAP has strengthened its position as both a political force in Yemen [4], as well as an important regional terrorist force.

Failing to raise enough international attention as to amount for of the scale of grave severe human rights violations and an increasing humanitarian toll, the conflict in Yemen has been labeled by Amnesty International as the 'forgotten war' [5], with more than 5974 civilians killed and more than 9493 wounded, as reported by the UN Office of the High Commissioner for Human Rights in February 2018 [6].

3. THE MILITARY INTERVENTION IN YEMEN - CONTESTED LEGITIMACY AND HUMANITARIAN TOLL

As a result of the worsening political situation in Yemen, in March 2015 the Gulf Cooperation Council (GCC) decided to launch a military intervention under the name of Operation 'Decisive Storm'. Led by Saudi Arabia and receiving material support from several other Arab countries, as well as logistical support from US and UK, the intervention was largely considered legitimate by the international community, as it was officially requested by President Hadi. In a letter addressed to the GCC on 24th of March 2015, he asked for immediate support, even in the form of military intervention, in order to protect Yemen and its people.

However, the issues raised by the military intervention in Yemen were quite complex. The first one is related to the legality legitimacy of the intervention and the arguments invoked in legitimizing the use of force. The 'intervention-by-invitation' argument invoked by the CCG has been criticized for its dependence on the condition that the entity asking for the intervention needs to exercise effective control over the state's

territory [7], which is difficult to assess in situations of grave internal turmoil and territorial disputes as it was the case in Yemen.

The second issue is related to the worsening humanitarian situation and the incapacity or unwillingness of the international community to act in order to alleviate the suffering of the civilians. In August 2018, UNICEF reported that, even before the outbreak of the conflict, Yemen faced serious challenges form from widespread poverty, food insecurity and lack of health services, with more than 22 million people (and nearly all being children) in desperate need of humanitarian assistance [8]. The Saudi military strategy includes aerial bombings, ground fighting and a blockade severely restricting the flow of food, fuel and medicine to civilians, turning the country into an immense humanitarian disaster.

And finally, the third issue raised by the intervention is related to the alleged misuse of military equipment and to the grave violations of international humanitarian law by the Saudi military forces and the impact of the arms supply to the development and the outcome of the conflict. This third issue, intrinsically connected to the first two, will be analyzed in more detail in the following section of the paper, with the purpose of asserting whether and how the evolution of the conflict in Yemen has helped shape international norms regulating arms transfers.

4. EFFECTS OF ARMS EXPORTS AS CHALLENGES TO EXISTING NORMS

The dynamic of arms flows in recent years has rapidly changed and increased. With the volume of international transfers steadily growing from 2003 onwards [9], the Middle East region accounts for almost half of the US arms exports, the largest recipient being Saudi Arabia (18%).

While arms sales are driven by important economic considerations, there is also a strong political component involved in the process [10], as arms transfers contribute to strengthening bilateral relations and to building alliances. In 2017, it is estimated that the military expenditure has reached its highest peak since the end of Cold War [9], the states that have allocated the most of their financial resources to military expenditure being US, China, Saudi Arabia and India, together amounting counting for 60% of the total global expenditure.

Much of this military equipment found its use in the war in Yemen. Quoting a report issued by Arms Trade Treaty Monitor [11], Amnesty International has launched a media campaigned aimed at drawing attention to the need to stop arm delivery towards Saudi Arabia, documenting the use of cluster ammunition and attacks against civilians by the forces of the coalition.

As a result, the international community expressed concerns related to the serious allegations of breaches of international humanitarian law by Saudi Arabia in the conflict in Yemen. The EU Parliament has adopted a resolution on 25 February 2016 [12] asking Member Countries to thoroughly evaluate their national policy regarding arms export control, underlying that the EU regulations explicitly rule out the authorizing of arms licenses by Member States if there is a clear risk that the military equipment might be used to commit violations of the international law. This position fueled further debates about the legality and the morality of arms export to countries involved in conflicts, and the governments of France, UK, Germany and Spain have been subjected to critical media coverage.

As a consequence, in the UK the Committee on Arms Export Controls launched an inquiry into the use of UK-manufactured arms in the conflict in Yemen in April 2016. Although the report acknowledged the existence of documented cases of UK-manufactured cluster bombs that had been used by the coalition intervening in Yemen [13], the British government refused to halt its deals, stating that it operates one of the most robust export control regimes in the world, functioning on case-by-case basis, which ensures that all international regulations are met. The official UK position totally disregards the appeals made by the human rights activists regarding the lack of morality

of such arms sales, continuing its arms trade arrangements in the Middle East region. Moreover, UK officials have stated that it is not for UK to decide whether Saudi Arabia has violated international law or not, thus passing the entire responsibility on the use of the equipment to the Saudi officials.

Some of the same international pressure has been directed towards the US, who is the major provider of military equipment for Saudi Arabia, as emphasized before. The deals have been renewed in May 2017, when US agreed on exporting arms worth more than $110bn to Saudi Arabia [14]. The Trump Administration hailed the deal as a huge success for the American economy, and a strong support for Saudi Arabia in the face of Iranian influence and threat, without ever mentioning the Saudi intervention in Yemen.

The issue of US arms sales and involvement in the conflict in Yemen reverberated into internal political debates, and three US senators have introduced in March 2018 a resolution conditioning US support of the Saudi-led coalition on a favorable vote from the Congress. The action aimed at regaining the prerogatives of the Congress in relation to waging war from the executive branch, imposing the necessity of a favorable vote by the Congress that would approve the US involvement in the Yemeni war, but the resolution failed to be adopted [15].

These two cases show that trying to assess whether and to what extent the national practice of arms exports is related to the destination state respecting international legislations, as well as alleged violations of international law and the humanitarian situation of the people in the areas of conflict can be quite challenging, because it brings to light the clash between the dominant behaviors (which make up the international norm regulating state behavior) and normative beliefs (ideas of what is good and for what reason). It is, however, a useful perspective in trying to better understand the nature, causes and dynamics of the conflict, and the impact of these considerations on the dominant normative beliefs related to the necessity and ethics of arms exports. Despite being faced with increased pressure from the human rights organizations and the media, neither the US nor the UK governments decided to alter their decision to sell military equipment to Saudi Arabia.

There have been, however, a number of cases where the demands to stop arms sales to Saudi government have generated change in national policies. Starting with January 2018, a number of European States (including Norway, Belgium and, more notably, Germany) have announced their decision to stop granting licenses to export weapons to the Saudi Ministry of Foreign Defence [16], signaling a change in attitude towards the generally accepted arms trade rules and a growing political concern about further arming Saudi Arabia and its coalition partners.

However, it remains clear that investigating the politics of arms trade signals powerful political relationships between states, which can be meaningful and influential despite the public account of widespread violations of international humanitarian law and serious human rights abuses. Even though the public debate about arms exports towards countries in the Middle East has led to the activation of democratic control mechanisms in countries such as US and the UK and it has sparkled internal political debates, this has not resulted in altered national practices regarding arms sales, nor has it halted the military exports towards the region.

5. CONCLUSIONS

Building on the constructivist perspective that emphasizes norm construction as theoretically important in gaining an understanding of key forces that shape international politics, this paper has traced the manner in which states exporting military equipment to Middle East countries involved in the conflict in Yemen have dealt with accusations of illegal use of this equipment and the prospects of grave humanitarian consequences.

The analysis has shown that, in spite of clear evidence of breaches of international law and human rights violations, major exporters to the region have continued their arms policy towards the region, promoting either the

national economic interest or attributing the sole responsibility for the use of the military equipment to the recipient country. This behavior reinforces the norm that arms trade represents a strong component of international political relations and, besides enhancing the military capabilities of the receiving state, it also provides political support and legitimization. By not doing so, the governments of Western democracies not only act in contradiction to their official ethical positions, but also undermine the generally endorsed goal of maintaining international peace and security.

There has been, however, a small change in the behavior on the part of some of the members of the international community, notably European States that stopped their arms exports to Saudi Arabia. Although it might seem insignificant, this actions bring the norms related to ethical considerations of arms trade closer to a threshold that might eventually bring about normative change.

As rules and norms set expectations about how the world works and what types of behaviors are legitimate, helping build up a norm that prioritizes human rights concerns over financial interests and short-term material payoffs should be considered highly important and the embodiment of a general political commitment towards international peace and stability [17].

As a conclusion, it can be emphasized that the answer to the question of whether states decide to continue or to stop their arms export towards states involved in violent conflicts is incidental to the wider debates about the prevalence of political and economic interests over human rights considerations, and it is also heavily influenced by the actions of the major actors on the international scene. For now, however, there is compelling evidence that powerful countries such as US and the UK will continue to pursue their strategic interests despite serious concerns regarding the negative impact of arms exports to the Middle East region and ignoring the predictable effect of a worsening humanitarian situation.

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THE IMPACT OF FOREIGN DIRECT INVESTMENT AND TRADE ON ECONOMIC GROWTH IN IRAN: AN ARDL BOUNDS TEST APPROACH

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The correlation between trade, FDI and economic growth in many developing nations had remained one of the greatest crucial problems in the economic scholars in current years mostly for those countries facing from unemployment issues and lack of skills and technological development. Our study evaluates this problem by applying Autoregressive Distributed Lag (ARDL) model over the span 1970 - 2007 in Iran. We have found evidence that the relationship between FDI and population is positive and statistically significant, meaning that population is mainly characterized by foreign investors, knowledge and transfer of technology, and we can see that FDI is mainly affected by skill employers in Iran. While the relationship between FDI, Trade and GDPC are positive but insignificant, it illustrates that FDI doesn't have any impact on both trade and growth rate in Iran. Our findings are similar with previous studies.

Keywords: *Economic growth, FDI, Trade, ARDL and Iran.*

1. INTRODUCTION

FDI and Trade are famous as an essential reason in the economic development method. Trade plays a significant role of increasing skills through the importation of superior production initiation and technology. Exporters are using developed production technology and innovation either through acting as subcontractors to foreign endeavor or by international markets competition. Producers of import-substitutes face competition from foreign companies. They are pressed to accept more capital-intensive production facilities to face the difficult competition in the developing states, where products are mainly capital intensive (Frankel and Romer, 1999). The effect of trade on economic growth can be positive and significant due to increase of physical capital and technology. Internal FDI can play a very important role by rising the supply of funds for local investment in the less developed nations. Foreign direct investment

could be encouraged and the making of thousand new opportunity jobs, improve technology transfer, and increase whole growth rate in the most developing nations. Wang and Blomstrom (1992) and Gunther (2002) have found four channels of technological spillovers from foreign companies to domestic companies, such as:competition, connection, and, imitation (i.e. also labor mobility) imitation is also known as the process of learning-by-watching impact.

Moreover, when a domestic company increases its productivity by reproducing the technology used by the international company. The presence of foreign companies makes competition with local companies. Therefore, local companies are required to use the existing economy resources more efficiently and accept new technologies (De Mello, 1997, 1999). Thus, local companies are enforced to reuse economy resources and accept new technologies (De Mello, 1997, 1999).

In addition, FDI brings the newest version of technology to the host country, this effect could be flexibility of good trained managers and workers from external company to local company (Fosfuri et al., 2001; Glass and Saggi, 2002). Moreover, Foreign Direct Investment spillover rising from linkages may~~be~~ occur when foreign companies have productivity spillover effects on domestic. In the same production increasing the quantity and quality of goods and services (Borensztein et al., 1998). Most of the previous literature dealt either FDI and trade interaction on growth (see Balasubramanyam et al., 1996; Karbasi et al., 2005). However, they cannot reach a conclusive result on the correlation between trade and FDI in most of the developing countries. The economic growth increasing the impacts from FDI and trade differ from a country to another. For example, FDI and trade have a negative effect on growth (Balasubramanyam et al., 1996; Borensztein et al., 1998; Lipsey, 2000; De Mello, 1999; Xu, 2000).

Previous researcher focused on three empirical limitations. First, most of the econometric literature had discussed the impact of FDI on economic growth rather than the causality relationship between them in developing nations. Secondly, previous study had used co-integration model based on the Engle and Granger (1987) and on Johansen (1988) and Johansen and Juselius (1990). Whereas, these co-integration model its not a good way to examine when the sample size is very small (Odhiambo,

2009). Odhiambo (2009) had used the bounds testing co-integration model improved by Pesaran et al. (2001), which is more robust for a small sample. Third, previous literature mostly focused on cross-sectional data and they did not addressed country-specific issues (Casselli et al., 1996; Ghirmay, 2004; Odhiambo, 2009). Our study investigate the correlation between trade, FDI and growth in the case of Iran by applying ARDL model and FDI and trade are expressed as a ratio of GDP.

The rest of our paper is structured as follows. Section 2 presents a theoretical and section 3 shows an empirical literature review. Section 3 shows the applied data, while Section 4 indicates the estimation technique and the empirical study of the results. Section 5 concludes the paper.

2. A THEORETICAL BACKGROUND

Theoretically, the effect of foreign direct investment (FDI) on growth is different from econometrics methods in growth methods, for example, in neo-classical model, FDI does not impact the long-term economic growth, but only it has an impact on the level of output. An exogenous growth model increase in FDI would promote the amount income per and capita temporarily as diminishing returns would impose a limit to this growth in the long term. The effect of foreign direct investment on the long-term economic growth can occur only through technological development or improvement of the labor sector, which are both focused exogenous. The influential work of Solow growth model (1956, 1957) made the basis for numerous previous literature.

These studies concentrated onthe total production function that related the economy's output to capital and labor inputs using macroeconomic series. Investment is integrated as a static part of productivity. In spite of the neoclassical method reporting the effect of technological advance on growth, it does not explore the influence of technological advance.

The determinants for the economic model was to find the effects of technological advance on growth. It is mostly concentrated on motivations that drive creation and invention, as a major key of growth (Romer, 1986, 1990; Lucas, 1988; Grossman and Helpman, 1991). The methods commonly mainly supposed constant returns to scale to inputs such as (labor and capital), the quality of skills was expected to depend on inputs, and FDI to impact growth rate via variables such as capital, human

development, and research, (Romer, 1986; Lucas, 1988).

The technology spillovers from foreign direct investment motivate long-term economic growth, but the extent to which this occurs depends mainly on the stock of human capital and the absorptive capability of companies in the host country (Borensztein et al., 1998).

The main difference between the neoclassical model and the new growth is the role of technology. Although the previous classical model assumed that technology could be exogenous, while, the other explains it should be different from different sources, such as human capital, research and development and tangible capital spending.

3. LITERATURE REVIEW

Previous study mainly concentrated on the impact of trade and FDI on economic growth and generally has been argued for many countries such as developed and developing nations by applying various statistical and econometrics models with different time periods such as time series and cross sections (Balassa, 1985; Sengupta and Espana, 1994). Furthermore, Ghirmay et al. (2001) found the correlation between economic growth and exports in nineteen less developed nations by appling a causality model. They found a long-run relationship between economic growth and exports only in twelve of the less developed countries, with the advancement of exports attracting investment and raising gross domestic product in these states. They suggested that the economic growth in East Asia is totally not the same with Southeast Asia. Moreover, By applying a bivariate model for the period from 1976 to 2003, Mamun and Nath (2004) conclude that a long-term unidirectional causality exist from exports to growth. Moreover, Boyd and Smith (1992) investigated that foreign direct investment might be impact economic growth negatively due to misallocation of economic resources in the presence of some distortions in pre-existing trade, price and others which maybe rely on a variety of cross-country regressions for testing the effect of FDI on GDP per capita.

In addition, Blomstrom et al. (1994) concluded that foreign direct investment helps economic growth when GDPC is mainly high in the host country. Borensztein et al. (1998), also found that FDI can be a significant tool of the transfer of modern technology, but it also depends on the skills in the host country, Nair-Reichert and Weinhold (2001) suggested that the correlation between foreign local investment and growth in the less

developed nations which is heterogeneous. Sadik and Bolbol (2001) investigated the effect of foreign direct investment on total factor productivity in six Arab states over the span 1978–1998.

They had explore a significant and negative effect of foreign direct investment on total factor productivity for the cases of Saudi Arabia, Tunisia and Egypt. Bashir (2001) investigated the relation between foreign direct investment and gross domestic product in six south Mediterranean nations. He found that the impact of FDI on growth is positive and statistically insignificant.

Moreover, Athukorala (2003) had applied the econometric framework of co-integration and an error correction model to explore the correlation between foreign direct investment and gross domestic product in Sri Lanka. He found that foreign direct investment has a positive impact on gross domestic product. Darrat et al. (2005) studied the effect of foreign direct investment on growth in Central and Eastern Europe, and the MENA regions by applying a panel data.

They found that foreign direct investment encourages economic growth in EU states, while the effect of foreign direct investment on growth in MENA is either non-existent or negative. Meschi (2006) investigated the effect of foreign direct investment on growth in 14 MENA states by applying panel data methods. She concluded that the coefficient of foreign direct investment is negative.

Nicet-Chenaf and Rougier (2009) examined the correlation between economic growth and FDI in a set of MENA states and they had found that FDI has no any significant and positive impacts on economic growth, they explained that FDI might be playing an indirect role in growth through its positive impacts on the formation of human capital and international integration. Tintin (2012) investigated the relationship between FDI and economic growth for 125 countries. He found that FDI causes increase economic growth for both developed and less developed countries.

On the other hand, the magnitudes of the effects of foreign direct investment on growth rate are non-uniform across country samples, Balasubramanyam et al. (1996) examined the relationship between trade openness and FDI in less developed states. They found that foreign direct investment has a positive and significant impact on growth in host states which have an export promoting strategy, but not in countries which have an import substitution strategy.

Baliamoune-Lutz (2004) examined the impact of FDI on economic growth in Morocco, he found a positive and a bidirectional correlation between exports and foreign direct investment. Their result shows that foreign direct investment can support exports. Using Arellano and Bond's dynamic panel data model for twenty eight Chinese provinces over the span 1978–2000, Yao (2006) found that both FDI and exports have a positive impact on growth rate. Hisarciklilar et al. (2006) investigated the correlation between FDI, economic growth and trade in some MENA states. They have found no relationship between FDI and GDP for most of the group countries.

Alaya (2006) investigated the relationship between exports, domestic investments, and human capital in the case of Morocco, Tunisia and Turkey. He concluded that the effect of FDI on growth is statistically significant and negative. He explained more about his results. First, foreign direct investment has the tendency to eradicate local investments in the sample nations. Secondly, foreign direct investment is unsteady, and the volatility of foreign direct investment is described by privatization, which becomes one vital source of foreign direct investment for these nations. Rahman (2007) examined the impacts of FDI and exports on the real GDP of some Asian nations such as (India, Bangladesh, Pakistan, and Sri Lanka) by applying the ARDL approach. He found that, the short-run relationship exists in the case of both Bangladesh and India. In the case of Pakistan and Sri Lanka, foreign direct investment was found to exert net restrictive impacts on its real gross domestic product, and statistically insignificant.

Alalaya (2010) applied ARDL model to investigate the relationship between FDI, economic growth, trade and FDI in the case of Jordan. He concluded a unidirectional causal impact from FDI and trade to growth. Marc (2011) examined the impact of foreign direct investment on the economies of 7 south Mediterranean states such as (Egypt, Algeria, Tunisia, Jordan, Morocco, Turkey , and Syria). He found that exports and human capital are the main crucial factors in creating positive spillover impact on growth. On the other hand, the impact of foreign direct investment on economic growth is statistically significant and negative.

4. DATA AND METHODOLOGY

The Data

Table 1

Variable	Description	Source
FDI	Foreign Direct Investment	WDI (2010)
GDPC	Gross domestic product per Capita	WDI (2010)
TRADE	Trade	WDI (2010)
POP	Population	WDI (2010)

The four variables that have been used in this work such as Foreign Direct Investment, Gross domestic product per Capita, Trade and Population, by applying time-series data over the period 1970–2007 as shown in Table1. The data are collected from World Development Indicator (WDI).

We have started and analyzed the unit root test for the variables and we expected that the data applied in this estimation are stationary. If the results of stationary are violated, this might lead to spurious results. In examining the time-series data properties, there are several models to test the stationary, but the most important one is the Augmented Dickey–Fuller (ADF) (Dickey and Fuller, 1979, 1981) and the Phillips–Peron (PP) (Phillips and Peron, 1988) unit root tests.

5. ECONOMETRIC METHODOLOGY

To investigate times series data in different order I(1) and I(0) together, Pesaran et al. (2001) recommended that, the Autoregressive distributed lag model (ARDL) to check for cointegration ~~as~~ is a good way and the best alternative to cointegration method for Engle-Granger (1989). Our work applies the ARDL approach to examine the short and long term correlation.

The ARDL bond testing model for co-integration can be written:

$$\Delta FDI_t = \alpha_0 + \sum_{i=1}^{n} \alpha_1 \Delta FDI_{t-i} + \sum_{i=0}^{n} \alpha_2 \Delta GDPC_{t-i} + \sum_{i=0}^{n} \alpha_3 \Delta TRADE_{t-i} + \sum_{i=0}^{n} \alpha_4 \Delta POP_{t-i}$$
$$+ b_1 FDI_{t-1} + b_2 GDPC_{t-1} + b_3 TRADE_{t-1} + b_4 POP_{t-1} + \mu_t$$

Here Δ is the first difference operator; ΔFDI_t stands for the natural log of foreign direct investment, $\Delta GDPC$ stands for the natural log of Gross domestic product per capital, $\Delta TRADE$ stands for the natural log of Trade, POP stands for the natural log of population and μ_t stands for the error correction term.

The *F* test is applyied to examine whether the long-term correlation exists between the variables through testing the significance of the lagged levels or

not. When the long-term correlation exists, the *F* test will indicate which variable should be normalized.

The null hypothesis of no cointegration amongst the variables are

$H_0: b_{1i}=b_{2i}=b_{3i}=b_{4i}= 0$

against the alternative hypothesis

$H_1: b_{1i} \neq b_{2i} \neq b_{3i} \neq b_{4i}=0$

for i=1, 2, 3, 4.

The *F* test has a standard distribution which mainly depends on; (1) whether the variables are included in the ARDL approach are I(0) or I(1); (2) the number of independent variables; (3) whether the ARDL approach contains an intercept and a trend; and (4) the sample size of the variables. According to Narayan (2005), the rejection of the null hypothesis mainly depends on the F-test and the critical bound tabulated value for a very small size.

The long term correlation among the variables exists if the calculated value of F - statistic is bigger than the upper critical bound, and if the calculated value of F- statistic is smaller than the lower critical bound, the long term correlation does not exist. If the calculated value of the F-statistic comes in between the range of lower critical bound (LCB) and upper critical bound (UCB), then the long term correlation is inconclusive, Mintz (1990) Hassan & Kalim, (2012). The optimal lag can be selected using the model selection criteria like Akaike Information Criterion (AIC). Narayan (2005) stated the maximum lags for small sample size is two lags.

6. RESULTS AND DISCUSSIONS

Table 2 ADF and PP for unit root tests and first differences of log levels of variables.

	ADF			
Philip-Perron				
				Level
Variables	**Intercept**	**Intercept and trend**	**Intercept**	**Intercept and trend**
ln(FDI_t)	-2.169854	-2.113416	-4.122575[a]	-4.168889[a]
ln($GDPC_t$)	-2.097320	-2.071440	-2.116179	-2.170516
ln($TRADE_t$)	-2.205005	-2.361274	-2.486194	-2.652155
ln(POP_t)	-2.604380	0.091360	-2.111791	-0.312468
First Difference				
ln(FDI_t)	-4.752532[a]	-4.710819[a]	-9.569092[a]	-9.406220[a]
ln($GDPC_t$)	-5.417103[a]	-5.3905	-5.417103[a]	-5.395533[a]

		15		
$\ln(TRADE_t)$	-5.396118[a]	--5.3139 24[a]	-5.7465 54[a]	-5.618401[a]
$\ln(POP_t)$	-3.924377*	-4.5731 18[a]	-4.0109 80[a]	-4.566197[a]

[a] *Denotes significant at 1%,*

Table 2 demonstrates the aftereffect of the stationary test for PP and ADF unit root test separately in Iran. The two tests demonstrated that FDI has a unit root at level, however it winds up stationary at first distinction, which show that FDI is I (1). On the other hand, other variable are observed to be statistically significant at first distinction and in this way it demonstrates the variables are I (1). As the outcomes turned out, the variables are either I(0) or I(1), thusly suggesting that we can unquestionably apply the ARDL to this strategy as applying ARDL requires the data must be stationary at the level I(0) and first contrast I(1) (Narayan, 2005).

Also, Table 3 demonstrates the co-integration test investigation, and the presence of a long run relationship has been built up among the model's factor variables. Results clarify that the F-statistics are 4.89. The critical value stands at ten percent level. At that point, the F-statistics is higher than the basic estimation of the upper bound test, the invalid speculation of no long haul co-incorporation relationship among the factors can be basically dismissed. And the null hypothesis can easily be rejected.

TABLE 3 Results from bound tests.

Lag structure: 0,0,0,2

F-statistics	**1% Critical value**		**5% Critical value**		**10% Critical value**	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
4.8978**	4.428	6.250	3.202	4.544	2.660	3.838
K=3, N=40						

The critical value according to Narayan (2005) (Case III: Unrestricted intercept and no trend).
(**) Significant at 5%.

Table 4 indicates the estimated coefficients of the long-term relationship which are significant for population but not significant for GDP per capita and trade openness. Population has a significant and positive effect on FDI at the 5% level. This is indicative of the growing relationship between FDI and unemployment problem in Iran, which stimulate the FDI.

The high level of unemployment in Iran, which is related with non-qualified workers characterized by low output, motivates foreign investors around the world to enter Iran. Moreover, the effect of GDP per capita and trade openness, the two variables are not significant at the 5% level. The degree of trade openness to exterior does not stimulate foreign direct investment, which makes new jobs which maybe lead to growth in Iran. Furthermore, Mello (1997) and the

OECD (2002) found that the way in which FDI impacts economic growth is likely to depend on the economic and technological progress.

TABLE 4 LONG TERM RELATIONSHIP

ARDL(0,0,0,2)
selected based on AIC.

Regressors	*Coefficient*	t-Statistic	*Probability*
Constant	46.0092	0.30603	0.762
$LGDPC_t$	3.6169	1.0002	.325
$LTRADE_t$	-6.7491	-1.0521	.301
$LPOP_t$	258.2754[a]	2.0770	.046

[(a)] Significant at 1%.

Furthermore, the results of the short-term dynamic coefficients correlated with the long-term relations are illustrated in Table 5. All variables are passes and all diagnostic tests are free in serial correlation (Durbin Watson test and Breusch–Godfrey test), heteroscedasticity (White heteroskedasticity heteroscedasticity test), and normality of errors (Jarque–Bera test). The Ramsey RESET test also recommends that the model is well stated.

TABLE 5 Results of diagnostic tests.

Test statistics:	x^2 statistic	Probability
Jarque-Bera(normality)	.063	n/a
LM test (1) correlation	.764	.789
ARCH test	.550.	.563.
Ramsey RESET test	.108.	.145
CUSUM test	Stable	Stable
CUSUMQ test	Stable	Stable

Finally, when focusing the stability of the long-term coefficients together with the short-term dynamics, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ) are used following Pesaran and Pesaran cited in Bahmani-Oskooee (2001), the stability of the regression coefficients is examined by stability tests and they can illustrate whether or not the model equation is stable over time.

This stability test is suitable in time series data, particularly when we are not sure about when structural change maybe have taken place. CUSUM and CUSUMQ statistics are plotted against the critical bound of 5% significance. According to Bahmani-Oskooee and Wing NG (2002), if the plot of these statistics remains within the critical bound of the 5% significance level, the null hypothesis (i.e. That all coefficients in the error correction model are stable) can be accepted. The plot of the cumulative sum of the recursive residual is showed in graph 1-2. As illustrated, the plot of both the CUSUM and the CUSUMQ residual are within the boundaries. That is to say that the stability of the parameters has remained within its critical bounds of parameter

stability. It is clear from both the graphs illustrated in Figure (1-2) that both the CUSUM and the CUSUMQ tests approve the stability of the long-term coefficients.

7. CONCLUSIONS AND POLICY IMPLICATIONS

This study has evaluated the correlation among the series of foreign direct investment, economic is statistically insignificant. Even though most of the previous studies believe that foreign direct investment can make positive productivity for the host country, however, our work fail to confirm them, GDP per capita is the key driver of growth in Iran.

These consequences can create significant implications and suggests for policymakers in terms of Iran. It suggests that for foreign direct investment to have predicted positive effect on population, Iran will have to undertake serious reforms with clear objectives and strong suggestions. In addition, our results could be interesting for most of developing countries to learn the lesson that the attraction of foreign direct investment is vital to stimulate growth.

growth, trade openness, and population in the case of Iran for the span of 1970 – 2007. It implements an ARDL approach to co-integration to examine the existence of a long-term correlation among the above variables. The results indicate that there is cointegration among our variables stated in the model when foreign direct investment is the dependent variable. Population support FDI in the long term.

Figure 1 Cumulative sum of recursive residuals

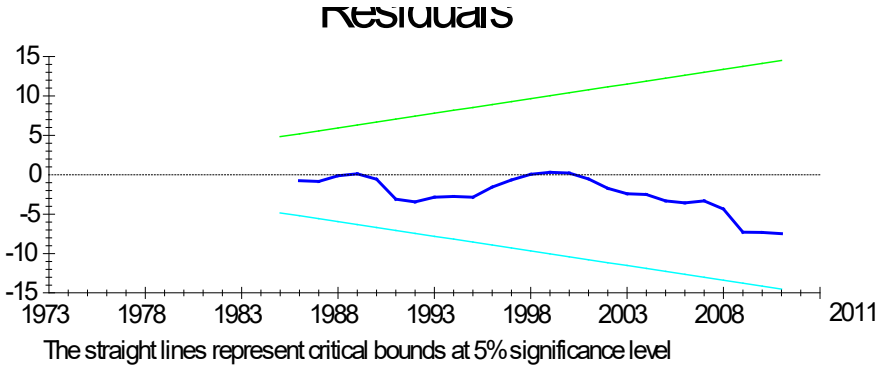
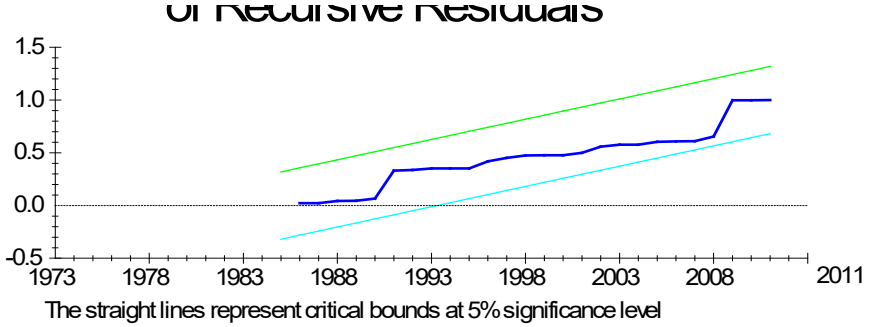


Figure 2 Cumulative sum of squares of recursive residuals



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PROJECTING THE ORDER OF MILITARY MERIT POPULATION. AN APPLICATION OF THE COHORT-COMPONENT METHOD.

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Abstract: *In 1972 the Canadian Armed Forces (CAF) created the Order of Military Merit (Order) to honor members who have demonstrated conspicuous merit and exceptional service. Despite efforts to ensure appointments to the Order were representative of the entire CAF, a 2007 study found that appointments had become concentrated at senior ranks. In response to this study, new nomination guidelines were released in 2007 and then augmented in 2010. The 2010 guidelines yielded some early positive results; however, the average years of service (YOS) at appointment target has not been met. The Order's advisory council requested a population forecast of the Order to determine the impact on the size and YOS profile of the serving Order population if the typical YOS at appointment is reduced to 18 to 23 years. This paper presents the methodology used to model the Order population and discusses the impact of appointing members to the Order earlier in their career.*

Key words: cohort-component, population projection, population model, population dynamics, order of military merit, military honors and awards.

1. INTRODUCTION

The Order of Military Merit (Order) is an honor which recognizes conspicuous merit and exceptional service of members of the Canadian Armed Forces (CAF). When it was first created in 1972, the Chief of Defence Staff (CDS) explained to the nominating commands that while merit was the overriding criterion

> *the order would only be meaningful to the public and members of the CF* [1] *if appointments were representative of the entire CF and not limited to a specific environment, command, linguistic group, occupation or rank* [2].

Despite efforts to ensure appointments to the Order were representative of the entire CAF, a 2007 study found that appointments were increasingly concentrated at senior ranks for both officers and non-commissioned members

(NCMs). Consequently, the average years of service (YOS) of appointees had increased from less than 12 years in 1972 to 29 years in 2007 and the perception of the award became such that it was only for high ranking members [3].

In response to the 2007 study, CANFORGEN 188/07 was released to reiterate the basic principles of the Order and the advisory board's desire "*to see a broader distribution of nominees among all ranks"* [4]. In addition, a benchmark of 18 to 23 YOS was set when considering candidates for initial appointment. The motivation for this benchmark was to "recognize people at the peak of their career rather than at retirement" [5], which would increase the visibility of Order members among the serving CAF population, allow appointees to serve as role models for a longer period, and increase opportunities for advancement within the Order.

By 2010, the average YOS of appointees decreased to 26.1 years; however, rank representation remained a concern [6]. The CDS then released CANFORGEN 056/10 with more specific guidelines about how nominations should be distributed among the ranks [7]. The new guidelines yielded early positive results in terms of CAF representation; however, the average YOS of appointees did not decrease further and was 26.3 years in 2016 [8].

Recognizing that it takes time for new trends to manifest, the Order's advisory council requested a population forecast to determine the impact on the size and YOS profile of the serving Order population if the typical YOS at appointment is reduced to 18 to 23 years. The aim of this paper is to present the methodology used to model the Order population and discuss the projected impact of appointing members to the Order earlier in their career. The focus of this study was on the Regular Force (Reg F) only.

2. METHODOLOGY

Statistical agencies across the globe employ the cohort-component method to produce population projections [9, 10, 11]. Populations are divided into cohorts by age and sex and can be further subdivided based on other demographic attributes. The cohort-component technique uses assumptions about demographic components of change, which are projected separately by cohort, to produce population projections. In general, the demographic components that impact the size of a population (or cohort) are deaths, births, immigration, and emigration. In addition to changes in these components, the size of the population at the beginning of a time

interval will impact the projected population size at the end of the time interval.

In the case of projecting the Order population, the components that affect the population size are attrition and appointments, which are analogous to deaths and births, respectively (1). In the CAF, YOS has been found to be a strong predictor of attrition [12]. Furthermore, in order to project the impact of YOS at appointment on the size of the Order population, the YOS of new appointees must be modelled. Therefore, Order cohorts are based on YOS rather than age and sex. As such, the cohort-component model applied in this study can be expressed as:

$$population_t[m]=population_{t-1}[m-1]+appointments_t[m]-attrition_t[m]$$

where *m* is YOS measured at the end of year *t*.

The sequence of steps required to project the Order population is depicted in **Figure 1**. Each of these steps will be discussed in detail in the sections that follows. First, the sources of data used in this study are discussed.

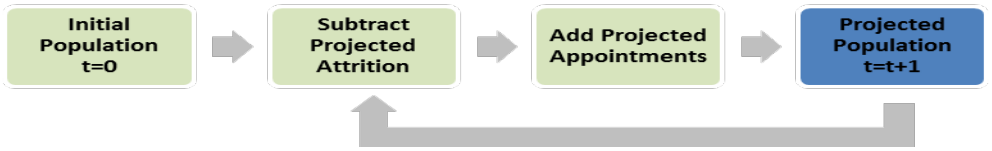

Figure 1: Algorithm to project Order population.

2.1. Data

Two databases were used for this study: the Director General Military Personnel Research and Analysis (DGMPRA) historical personnel database and Monitor Mass (MM). The DGMPRA database maintains historical records of CAF Reg F personnel; however, it does not include data on Honours & Awards, including appointments to the Order. MM does include data on Honours & Awards; however, only records of currently serving members of the CAF can be extracted from MM. Therefore, the DGMPRA database was used to retrieve historical Reg F data and MM was used to retrieve current Order population data.

a. Initial population

The starting point for the Order population projection was taken as the total number of Reg F Order members at each YOS point as of the end of fiscal year 2017/2018 (FY 17/18).

The initial population is denoted as: $population_0[m-1]$,

$population_0[m-1]$

where $(m-1) \varepsilon [0,45]$

$$(m-1) \in [0,45].(1)$$

b. Attrition

Projected attrition volume by YOS is calculated by applying YOS-based attrition rates to the projected population. For this study, it was assumed that the attrition rates for Reg F Order appointees would be the same as for the Reg F population in general at each YOS point. In order to minimize the effects of year-to-year fluctuations in attrition, five years of historical attrition data (from FY 12/13 to FY 16/17) were used to generate weighted average attrition rates (WAAR). The formula used to calculate WAAR by YOS is:

(2)

$$WAAR[m] = \frac{\sum_{t=1`}^{T} attrition_t[m]}{\sum_{t=1}^{T} population_{t-1}[m-1]}$$

where $attrition_t[m]$ is the attrition volume in year t for members having m YOS at the end of year t; and $population_t[m]$ is the population with m YOS at the end of year t.

It is assumed that all appointments occur once per year, at the end of the year, which is consistent with Order practices. Therefore, new appointees are not subjected to attrition in their year of appointment. Appointments are discussed further in the following section. The projected attrition volume in year t for members with m YOS can then be expressed as:

$attrition_t[m]=WAAR[m]*population_{t-1}[m-1]$

$$attrition_t[m] = WAAR[m] \times population_{t-1}[m-1]. \quad (3)$$

c. Appointments

The annual number of appointments to the Order is a function of the size of the CAF population; specifically, 0.1% of the size of the CAF in the preceding year [13]. Historically, appointments are not distributed among CAF components based on each component's share of the CAF population. Trends show the Reg F receives about 85% of appointments; the Primary Reserve (P Res) receives about 15%; and the other sub-components of the Reserve Force (Res F) (i.e. Rangers, and Cadet Organizations Administration and Training Services) receive less than 1% [14]. Therefore, projections for the size of the entire CAF population (not only the Reg F) are required to project the number of annual appointments. Projections for the Reg F and P Res were retrieved from an internal strategic planning model, which takes into consideration Reg F and P Res strength targets and institutional capacity for recruitment and training

[15]; and the populations of the other Res F sub-components were assumed to remain constant.

YOS was assigned to projected appointments based on a probability distribution for YOS at appointment. Three different scenarios were considered. The first scenario, *S1: Historical*, which served as a baseline from which to compare the other scenarios, assigned YOS to projected appointments in accordance with the historical YOS at appointment distribution. This distribution is based on appointments of Reg F members to the Order from 2012 to 2017, as decoration dates prior to 2012 are unreliable. Due to data limitations, this distribution is based only on YOS at appointment data for members still serving in the CAF (2). As shown in **Figure 2**, historically, the majority (51%) of appointments occur between 24 and 29 YOS. For the second scenario, *S2: Shift 3yrs*, the historical YOS at appointment distribution was shifted down by three YOS, such that the majority of YOS assignments would be between 21 and 26 YOS. Similarly, for the third scenario, *S3: Shift 6yrs "Target"*, the historical YOS at appointment distribution was shifted down by six years. This scenario was labeled "Target" because the majority of YOS assignments are between 18 and 23 YOS, which was the target set by the Order advisory committee.

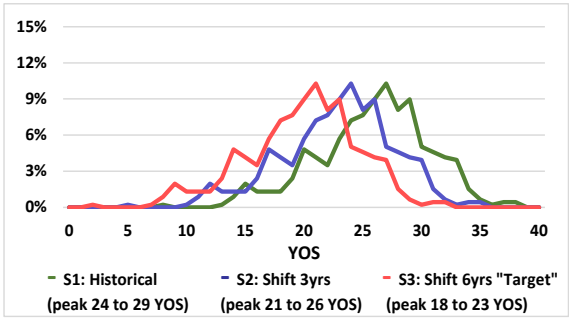

Figure 2: Distribution of YOS at appointment scenarios.

The projected volume of Reg F appointments to the Order in year t with m YOS is expressed as:

$$appointments_t[m] = \gamma[m] * (R * 0.001 * CAF population_{t-1}) \quad (4)$$

where R is the share of Reg F appointments and $\gamma[m]$ is the proportion of appointees assigned m YOS at appointment.

d. Projected population

The serving Order population for a given year is projected for each YOS cohort using **Equation 1**. This population then becomes the initial population for the next year and the sequence of calculations is repeated until the population has been projected for all years of interest.

3. ANALYSIS

Three scenarios were modelled to investigate the impact of appointing members to the Order earlier in their career than the historical norm. Each scenario projects the Order population by YOS from FY 18/19 to FY 22/23. **Figure 3** shows the initial Order population and the resulting population projections for FY 22/23 by scenario. It illustrates that the peak in the population profile by YOS shifts to the left if members are appointed to the Order earlier in their career than the historical norm. Consequently, the average YOS of the Order population still serving in the Reg F in five FYs will be lower.

The results also show that if members are appointed earlier in their career, then the size of the serving Order population in five FYs will be greater. This is due to decreased attrition: as the population profile by YOS shifts to the left, there are fewer members at the highest attrition points and more members at lower attrition points, resulting in an overall decrease in attrition. This can be seen in **Figure**

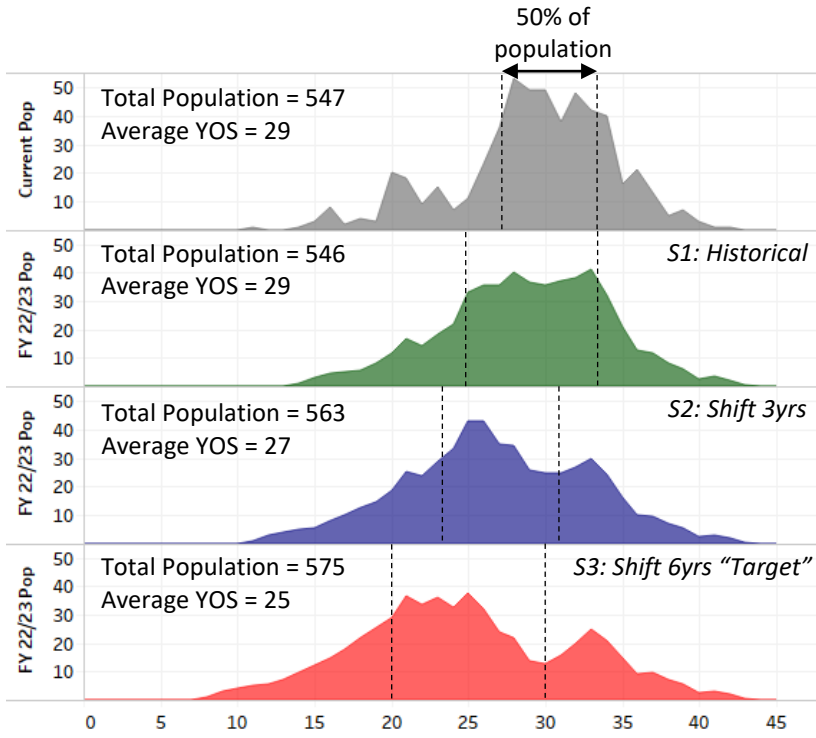

Figure 3: Current and projected population profiles by YOS.

4, which shows that for *S2* and *S3*, attrition of members with 0-29 YOS is expected to increase over the next five FYs, while attrition of members with 30+ YOS is expected to decrease such that total attrition decreases. More specifically, if the distribution of YOS at appointment is reduced by three years or six years, then by FY 22/23:

- the average YOS of the serving Order population will decrease to 27 or 25, respectively, versus remaining at 29;
- there will be 17 or 29 fewer cumulative releases, respectively; and
- the serving Order population size will increase to 563 or 575, respectively, from the current size of 547.

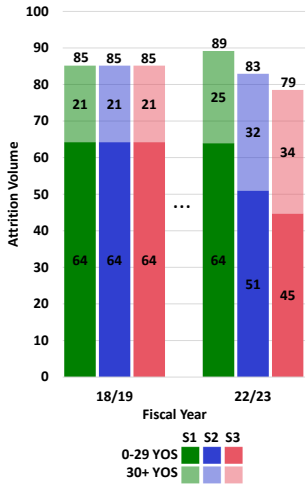

Figure 4: Projected attrition volume by YOS group: FY 18/19 and FY 22/23.

4. CONCLUSION AND REMARKS

The cohort-component method can be adapted to model various population dynamics. This technique allows analysts to investigate how variations in the change components impact population projections. For the purposes of this study, YOS at appointment distributions were varied to determine the impact on the size and YOS profile of the serving Order population. It was found that if YOS at appointment trends shift such that members are generally appointed sooner, then:

- the peak in the YOS profile of the serving Order population will shift and the average YOS will decrease;
- the number of members at the highest attrition points will decrease and the number of members at lower attrition points will increase, resulting in lower attrition overall; and
- the size of the serving Order population will increase.

The accuracy of a cohort-component projection is dependent on the accuracy of data on the demographic components of change. Data regarding members of the Order who have released from the CAF were not available for this study. Therefore, the results of this study are dependent on whether the YOS at appointment distribution of

currently serving Reg F Order members is representative of the whole Order and whether the attrition behavior of Order members is consistent with the attrition behavior of Reg F population members in general.

ENDNOTES

(1) Order members from the Reserve Force (Res F) who transfer to the Reg F could be considered analogous to immigration; however, this is a negligible contributor to the Reg F Order population, and therefore was not considered in this study.
(2) To ensure that this limitation would have a negligible impact on the results, the average YOS at appointment was computed and verified against documented historical YOS at appointment averages.

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THE QUANTITY ASSESMENT OF THE HUMAN FACTOR IN UNIT COMBAT CAPABILITY

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In the paper, the task of quantity assessment of the human factor has been considered in the determination of the unit combat capability. For determination of personal (staff) combat potential a physical drill, a combat training, a moral and psychological training, as well as, a battle experience have been taken into account as human factors. Besides this, an influence of a field and an environment conditions have been taken into account. Using these numerical data and weapon effectiveness coefficients, the method of unit combat capability (a dynamic power) calculations has been offered. In accordance to this method, first, the static power of unit has been determined, then the battle and environment conditions are been taken account.

Key words: *human factor, combat capability, performance characteristics, weapon effectiveness coefficient, combat consistency, unit combat capability*

1. INTRODUCTION

At present "a human factor" category has been used in complex systems with two meanings: 1) the characteristic of "human-technics" interaction; 2) a complex of the human qualitative characteristics [1, p.5]. In dependence on a system structure the effect level of human factor on their activities is various.

The human factor effect on activities of military units, in particular of battle one (executing battle tasks) is quite much. In a period of increasing of the weapon and military technics combat capability, the "human-technics" and "human-weapons" interactions increase much, too.

The combat capabilities of military units are determined, on the one part by the weapons and military technics effectiveness, on the other part by quality characteristics of personal (staff) involved on the battle's area. The actions of weapons and military technics occur on the basis of physical-chemical laws, they can be expressed by exactly mathematical expressions and the appropriate calculations can be fulfilled.

On the battle's area for the purpose of weapons and military technics operated by man, the

effectiveness of personal's (staff) combat application and the probability of successfully execution of combat task are depended on human brain activity, physical drill and moral-psychological quality.

But, the character of human activity, physical and moral-psychological capacity cannot be expressed by exactly mathematical expressions. There are many scientific articles devoted to this problem [2-6], and some methodology principles had been offered for the purpose of assessment of human factor. In addition to that, all discussions are based on the qualitative assessments. Such problem is arising during an assessment of battle and environment conditions and application in calculations. But these assessments are only qualitative.

2. THE DETERMINATION METHOD OF THE UNIT'S DYNAMIC POWER

The unit's dynamic power (PD) defines a capability of combat task execution (assault, defence, encounter battle) on the unit's battle area. The unit's dynamic power can be presented as the synergetic of various independent to each other factors and indicators (see fig. 1).

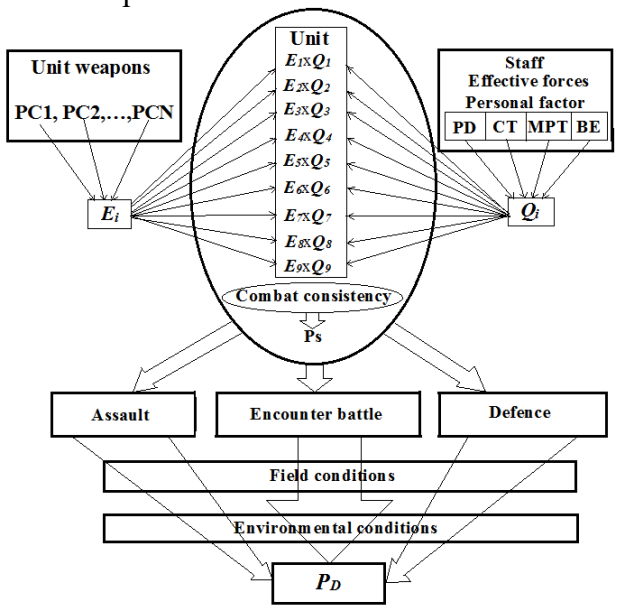

Fig. 1. *A combat capability (a dynamic power) of military unit.*
PC1, PC2,…,PCN are weapons performance characteristics of unit; E – weapons combat effectiveness; Q – combat potential of personal (staff); Ps – static power; PD - physical drill; CT - combat training; MPT - moral and psychological training; BE - battle experience; P_D – dynamic power.

These factors and characteristics can be divided on two categories:
1) Unit's private factors and characteristics (internal factors);
2) Field and environmental conditions (external factors).

Field conditions include a restoration of combat capability (staff relaxation, replenishment), a combat readiness (battle organization, engineering infrastructure readiness of the region, the position and front line) and a presence of engineering obstacles. Environmental conditions include terrain conditions (soil and plant cover), weather conditions (humidity, precipitation, wind, mist) and time of day (morning twilight, day, gloaming, night).

3. UNIT'S INDIVIDUAL CHARACTERISTICS, STATIC COMBAT POWER.

Unit's individual factors and characteristics are defined by unit's staff structure, armament and personal's combat readiness. Let us analyze this in more detail. Let us introduce the next definitions:
1) effectiveness factors of the weapons and military technics in unit's armament (E);
2) combat potential of each unit's personal (staff, gun crew) (Q);
3) the level of unit's combat consistency (U).

These factors and characteristics determine a unit's static power (P_s), that is, a combat effectiveness only conditioned by unit's weapons and personals, and independent of environment and battle.

Weapon effectiveness factor defines a level of the given weapon application in battle and, as a result, a power effect on enemy. For the purpose of determination of the weapon effectiveness factors the method described in [7] can be used. This method can be applied for calculation of these effectiveness factors based on any weapons' performance characteristics.

Combat potential of unit's personal (staff, gun crew) is a characteristic of each personal (staff, gun crew) common idiosyncrasy and during battle define their decisive action ability, fighting spirit and combat skills. Combat potential of each personal (staff, gun crew) is defined by physical, mental and psycho-cultural qualities:

q_{pd} is a physical drill of personal (physical force, exercise tolerance, quick reaction capability);

q_{ct} is a level of combat training of personal (practical knowledge and skills);

q_{mp} is a mental and psycho-cultural condition of personal;

q_{be} is a battle experience of personal;

Below there are the sources of receiving these characteristics:

- a physical drill of personnel q_{pd}, is permanently evaluated during combat training process (by 100 scoring system) and registration of the unit's combat training is carried out in the special log book;
- a level of combat training of personnel q_{ct}, is permanently evaluated during combat training process (by 100 scoring system) and registration of the unit's combat training is carried out in the special log book;
- a mental and psycho-cultural condition of personnel q_{mp}, is formed during process of psycho-cultural training (social and political, ideologicalpropaganda, psychological support), it is determined by commander privately for each person and registered in the special log book;
- a battle experience of personnel q_{be}, is based on the cases of personnel participation in real battle activities and determined taking into account a personnel's duration and intensity of the battle

Above personnel's qualitative indicators are defined in (0, 1) range and on the basis of it the personnel's combat potential is calculated by next formula:

$$Q = q_{pd} \times q_{ct} \times q_{mp} \times q_{be} \quad (1)$$

The level of unit's combat consistency is based on the units' training and exercises, defines an ability of coordinate and synchronize activities as whole unit on the battle area. This characteristic is defined on the basis of marks obtained during units' training and exercises and is changed in (0, 1) range.

Thus, units' static combat power is calculated by the formula below:

$$P_s = \left(\sum_{j=1,J} \left(E_j \sum_{i=1,i_j} [Q_{ji}) \right) \times U \right] \quad (2)$$

Where: P_s is a unit's static combat power, J is a number of arms types of the unit (AKM, SVD, PK, RPQ-7 etc.), E_j is an effectiveness factor of j type arm, i_j is j arm's type number, Q_{ji} is a combat potential of i personnel (staff, gun crew) used j arm's type, U is a level of the unit's combat consistency.

When using collective arms the common combat potential of personal (staff, gun crew) is taken as an average quantity of their combat potentials.

4. BATTLE CONDITIONS AND ENVIRONMENT FACTORS

The unit's battle conditions and environment factors impact on the execution of battle task. This impact is different depending on the battle type: assault, defence or encounter battle.

Below there are battle conditions' factors:

– the restoration level of combat ability (L_{CA});
– the level of combat readiness (L_{CR});
– the presence of engineering obstacle infrastructure (EO).

The restoration level of combat ability is defined by the degree of ammunition replenishment and refueling during personnel rest period after active battle (personal number and arms replenishment aren't considered here because it is taken into account during unit's static power calculation):

$$L_{CA} = L_r \times \frac{A\ (\%)}{100} \times \frac{F(\%)}{100} \quad (3)$$

Here: L_r is a factor of personal rest period (see table 1); A is a factor of ammunition supplies; F is a factor of fuel supplies.

Table 1. *Battle conditions' factors*.

	Assault	**Defence**	**Encounter battle**
Rest period			
< 8 hours	0,5	0,8	0,5
8 – 24 hours	1	1	1
> 24 hours	1,5	1,2	1,5
Battle organization period			
< 6 hours	1	1	1
6 – 24 hours	1,2	1,2	1,2
> 24 hours	1,4	1,4	1,2
Engineering structure readiness period			
< 6 hours	1	1	-
6 – 24 hours	1,2	1,2	-
> 24 hours	1,4	1,4	-
Long period	1,4	2	-
Density of engineering obstacles			
No obstacles	1,8	1	1,4
Low density of obstacles	1,6	1,2	1,3
Middle density of obstacles	1,4	1,4	1,2
High density of obstacles	1,2	1,6	1,1
Very high density of obstacles	1	1,8	1

The level of combat readiness (L_{CR}) is defined by a battle organization (L_{BO}, see table 1) and a period of the units' readiness for battle including region, position and front engineering structure readiness L_{ER} [8]:

$$L_{CR} = L_{BO} \times L_{ER} \quad (5)$$

Here: E_R is a engineering structure (table 1).

The presence of engineering obstacle infrastructure (EOI) [8] is defined by the density of own and enemy constructed engineering obstacles at the battle area (L_{EOI}, see table 1) [8]:

Let us consider environment factors:

– relief, ground and plant cover are the terrain factors (TF);

– humidity, precipitation, wind and mist are the weather factors (WF);

– night, day and gloaming are the factors of day time (DT).

The terrain factor (TF) [9] is defined by the impact of terrain relief (L_{TR}, see table 2), ground soil (L_{GS}, see table 6) and plant cover (L_{PC}, see table 2) on the troop's combat activities (observation, fire execution, concealment and preservation, impassability and diggings):

$$L_{TF} = L_{TR} \times L_{GS} \times L_{PC} \quad (6)$$

Table 2. *Terrain relief*

	Assault	Defence	Encounter battle
Properties of terrain ~~relief~~ landform or environment			
Flat ground	1,4	1	1,4
Hilly country	1,2	1	1,2
Low mountain terrain	1	1,2	1
Middle mountain terrain	0,8	1,4	0,8
High mountain terrain	0,6	1,6	0,6
Properties of ground soil			
Sandy ground	0,5	0,8	0,5
Soft clayey	1	1	1
Stone land	0,8	0,6	0,8
Properties of plant cover			
Open and shrub steppe	1	1	1
Middle woodland	0,8	1,2	0,8
Dense forest	0,5	0,8	0,5

The weather factors (WF) [9] are defined by the impact of atmospheric temperature (L_{AT}, see table 3), amount of precipitations (L_{AP}, see table 3), wind force (L_{WFr}, see table 3) and fog density (L_{FD}, see table 3) on the troop's combat activities (observation, fire execution, concealment, maneuvering ability, personal health):

$$L_{WFr} = L_{AT} \times L_{AP} \times L_{WFr} \times L_{FD} \quad (7)$$

Factors of day time (DT) are defined by the impact of visibility conditions on the troops combat activities (observation, fire execution, concealment, maneuvering and control abilities) (see table 3):

So, the combat capability (a dynamic power) of military unit can be calculated by next formula:

$$P_D = P_S \times L_{CA} \times L_{CR} \times L_{EOI} \times L_{TF} \times L_{WFr} \times L_{DT} \quad (8)$$

The combat capability can be calculated both for own and enemy military units. The some factors and characteristics of enemy units, in particular the individual peculiarities of military personnel, are unknown, then their values are taken equal to our units or based on the reconnaissance data the individual peculiarities for the enemy unit's personnel are taken equal to one value, for example: a moral and psychological state, a combat experience, a level of combat training etc.

For assessment of the expected battle success A_{BS} we can calculate the ratio of own P_{D1} and enemy P_{D2} units combat capabilities:

$$A_{BS} = \frac{P_{D1}}{P_{D2}} \quad (9)$$

If A_{BS}>1 then the probability of operational mission success is large.

Table 3. *Atmospheric temperature*

	Assault	**Defence**	**Encounter battle**
Atmospheric temperature			
Very hot (> 30° C)	0,5	0,8	0,5
Moderate (+5 ÷ +30° C)	1	1	1
Cold (+5 ÷ –15° C)	0,8	0,6	0,8
Very cold (< – 15° C)	0,6	0,5	0,6
Amount of precipitations			
No precipitations, low precipitations	1	1	1
Moderate precipitations	0,7	0,9	0,7
Heavy precipitations	0,5	0,7	0,5
Wind force			
Windless, breeze	1	1	1
Moderate wind	0,7	0,9	0,7
Strong wind (storm)	0,5	0,7	0,5
Fog density			
Clear day	1	1	1
Mist	0,8	0,9	0,8
Heavy fog	0,5	0,6	0,5
Day time			
Night	0,5	0,8	0,5
Gloaming	0,8	1	0,8
Day	1	1,2	1

5. CONCLUSION

Thus, the unit's combat capability has been calculated based on combat effectiveness of the weapons and military techniques and taking into account the impact of other factors: human factor, battle and environment conditions. For this purpose, the combat potential of the military personnel has been transformed to quantity by calculation of individual peculiarities and taking into account the battle and environment conditions.

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EU COUNTRIES IN NATO.
AN ANALYSIS OF DEFENCE EXPENDITURES.

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From all the statistical indicators concerning the activity of NATO we considering that the Defence expenditure is the most important one. NATO defines defence expenditure as payments made by a national government specifically to meet the needs of its armed forces or those of Allies. In this paper we have analyzed the evolution of this indicator between 2009 and 2016 in the 22 European Countries that are in the same time members of EU and members of NATO.

Key words*: EU, NATO, Defence expenditure, GDP, maximum and minimum value, evolution*

1. INTRODUCTION

Every year the Public Diplomacy Division of NATO has a Press Release concerning the *Defence Expenditure of NATO Countries.* With the aid of the last 2 reports – from 2017 and 2016 – comprising the data from 2009 until 2017 (estimates) we made an analysis of the defence expenditure in EU countries that are also NATO member countries. Those countries are, in alphabetical order of the country code: Belgium (BE), Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Greece (EL), Spain (ES), France (FR), Croatia (HR), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), United Kingdom (UK).

2. DATA ANALYSIS

In the tables below (**Table 1, Table 2 and Table 3**) we made a synthesis of the data concerning the main categories of Defence expenditures – Equipment, Personnel, Infrastructure and Other – in the 22 countries. We focus for each country on the maximum and minimum value – expressed as percentage of total defence expenditures.

The decision to spend the founds on each category was made based on the strategic direction of the country taking into account the political climate – inside and outside the country, the social conditions, the state of the economy, the predilection for risk, the tendency to have the latest technology at your disposal.

For the period analyzed the year with the most extremes values was 2009: 20 countries had maximum expenditure and also 14 countries had minimum expenditure. We registered similar situations in 2016 (16 countries with maximum expenditure and 12 countries with minimum one) and in 2012 (11 and 16 countries respectively).

If we look deeper at each of those maximum and minimum values, in 2009 we had maximum value for the expenditure on equipment in Belgium, Czech Republic, Greece, and the Netherlands. For the personnel the expenditure was at his maximum value in Denmark, Germany, Croatia, Latvia, Luxembourg and Poland. The defence expenditure for infrastructure was maximum in Belgium, Bulgaria, Spain, Hungary, Portugal, Slovenia, Slovakia, and United Kingdom. For other defence expenditure categories we had maximum in 2009 in Italy and Slovakia.

The minimum values of defence expenditure in 2009 were registered in Belgium, Bulgaria, Czech Republic, Greece, the Netherlands, and Slovakia for the

personnel; in France and Luxembourg for infrastructure; in Belgium, Denmark, Germany, Croatia, and Poland for other categories of defense expenditure and in Latvia for equipment.

Table 1. Defence expenditure by category in the first 7 analyzed countries

			BE	BG	CZ	DK	DE	EE	EL
Equipment	maximum	year	2009	2010	2009	2010	2010	2014	2009
		value (%)	8.23	15.4	22.39	14.1	17.59	22.14	27.75
	minimum	year	2013	2014	2014	2012	2015	2011	2011
		value (%)	2.82	1.02	6.53	9.02	11.93	10.11	5.86
Personnel	maximum	year	2012	2015	2013	2009	2009	2013	2014
		value (%)	78.52	73.66	62.03	56.28	53.19	39.83	77.17
	minimum	year	2009	2009	2009	2012	2016	2012	2009
		value (%)	74.46	59.21	46.11	49.04	48.35	29.74	56.52
Infrastructure	maximum	year	2009	2009	2010	2016	2010	2010	2011
		value (%)	2.24	6.06	5.79	2.16	5.16	13.72	1.26
	minimum	year	2015	2013	2012	2014	2016	2014	2016
		value (%)	0.93	0.46	1.61	0.96	3.39	8.2	0.6
Other	maximum	year	2013	2012	2010	2012	2016	2012	2012
		value (%)	17.9	30.84	31.12	40.68	36.05	47.71	18.54
	minimum	year	2009	2010	2012	2009	2009	2014	2013
		value (%)	15.05	17.91	21.94	32.55	24.49	31.03	12.74

Table 2. Defence expenditure by category in the next 8 analyzed countries

			ES	FR	HR	IT	LV	LT	LU	HU
Equipment	maximum	year	2012	2012	2011	2016	2016	2016	2010	2016
		value (%)	22.85	30.57	15.79	19.09	19.28	30.06	34.44	13.37
	minimum	year	2016	2016	2014	2012	2009	2013	2013	2012
		value (%)	6.65	24.44	7.34	8.86	5.41	9.23	14.56	5.84
Personnel	maximum	year	2016	2011	2009	2015	2009	2011	2009	2010
		value (%)	72.61	49.35	72.41	77.55	59.31	66.86	57.01	56.35
	minimum	year	2012	2010	2015	2016	2016	2016	2015	2012
		value (%)	57.18	47.63	63.64	70.79	43.18	45.5	42.77	47.68
Infrastructure	maximum	year	2009	2012	2015	2013	2016	2016	2013	2009
		value (%)	2.26	3.41	2.61	1.56	12.98	3.59	11.8	3.88
	minimum	year	2014	2009	2012	2016	2012	2011	2009	2015
		value (%)	0.66	2.16	0.56	0.7	4.16	1.36	3.12	0.64
Other	maximum	year	2011	2016	2015	2009	2014	2015	2013	2012
		value (%)	26.57	24.92	23.15	13.32	30.59	27.79	22.52	44.35
	minimum	year	2014	2012	2009	2016	2010	2012	2010	2010
		value (%)	18.5	16.88	15.83	9.42	22.68	20.55	15.76	29.47

Table 3. Defence expenditure by category in the last 7 analyzed countries

			NL	PL	PT	RO	SI	SK	UK
Equipment	maximum	year	2009	2015	2010	2016	2010	2015	2010
		value (%)	17.57	33.06	13.19	20.43	18	18.27	24.46
	minimum	year	2014	2013	2014	2012	2014	2011	2012
		value (%)	10.67	13.9	8.43	4.13	0.65	7.14	19.53
Personnel	maximum	year	2013	2009	2015	2012	2014	2013	2012
		value (%)	58.52	61.07	82.07	84	82.3	70.13	38.9
	minimum	year	2009	2015	2010	2015	2010	2009	2016
		value (%)	50.08	41.95	70.18	63.29	61.69	55.81	34.63
Infrastructure	maximum	year	2014	2013	2009	2016	2009	2009	2009
		value (%)	4.77	5.61	0.79	2.77	3.18	4.49	2.23
	minimum	year	2013	2010	2011	2014	2015	2013	2015
		value (%)	2.74	3.95	0.01	1.09	0.61	0.28	1.57
Other	maximum	year	2016	2016	2010	2015	2016	2009	2016
		value (%)	30.2	26.64	16.19	15.78	21.8	26.45	41.85
	minimum	year	2012	2009	2016	2013	2015	2014	2013
		value (%)	25.33	18.05	8.61	9.13	15.31	19.16	38.21

3. THE CASE OF ROMANIA

Concerning the defence expenditure in Romania we had extreme values as follows: minimum value for equipment in 2012, for other categories in 2013, for infrastructure in 2014, and for personnel in 2015. We registered maximum value of the defence expenditure for the personnel in 2012, for the other categories in 2015 and for the infrastructure in 2016.

We can follow the evolution of the defence expenditure in Romania [1] between 2009 and 2016 in the chart below (**Fig. 1**).

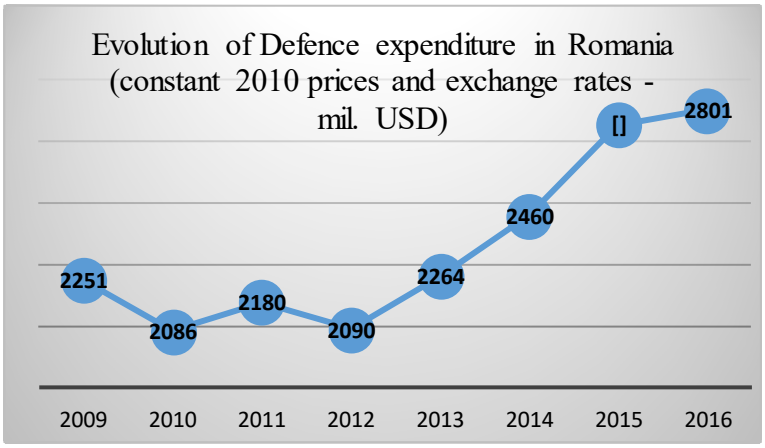

Fig. 1 Evolution of defence expenditure in Romania

In the next chart (**Fig. 2**) and table (**Table 4.**) we highlight the exact structure of defence expenditure in Romania for the 4 main categories. The conclusion is that the government spends the largest value for the personnel and unfortunately the smallest one for the infrastructure.

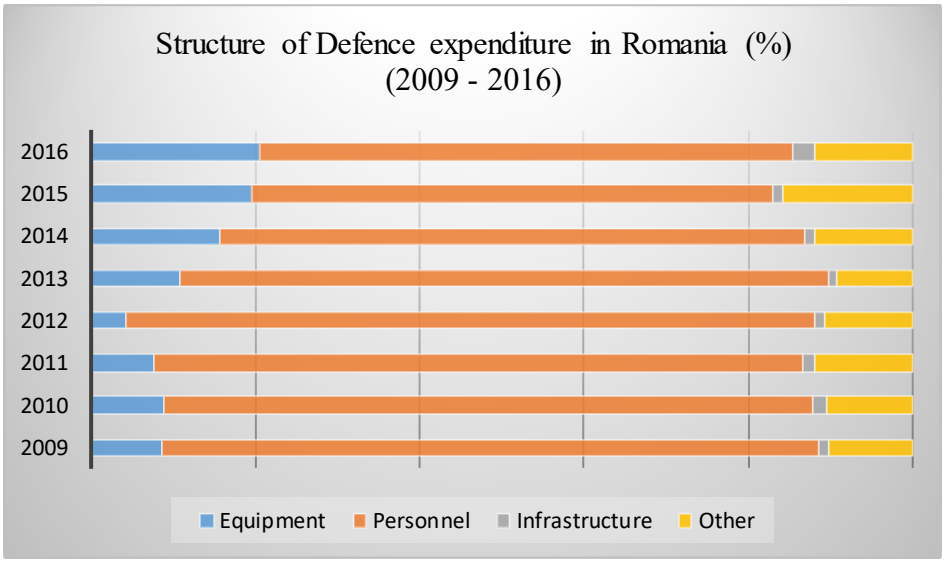

Fig. 2 Structure of defence expenditure in Romania (2009-2016)

Table 4. Structure of defence expenditure in Romania (2009-2016) by category (%)

	2009	2010	2011	2012	2013	2014	2015	2016
Equipment	8.70	8.79	7.57	4.13	10.71	15.77	19.64	20.43
Personnel	79.79	79.06	79.11	**84.00**	78.99	71.15	63.29	65.01
Infrastructure	1.39	1.81	1.46	1.18	1.15	**1.09**	1.26	2.77
Other	10.10	10.32	11.84	10.67	9.13	11.98	15.78	11.79

4. OTHER CONSIDERATIONS

The NATO guideline for defence expenditure as % of GDP is 2%. The only countries in EU that are complying with this in 2017 are Romania, Poland, United Kingdom, Estonia and Greece. [2] The first 3 countries mentioned are also complying with the NATO guideline for equipment expenditure – 20% of GDP – alongside with Luxembourg, Lithuania, Bulgaria, France, Latvia, Italia and Slovakia. [2]

In the 2 charts below (**Fig. 3** and **Fig. 4**) we can observe the evolution of defense expenditure in the 22 countries analyzed arranged in descending order comparing with the 2010 value. The Western Europe countries, having the most developed economies have also the largest defence expenditure. The only exception is Luxembourg.

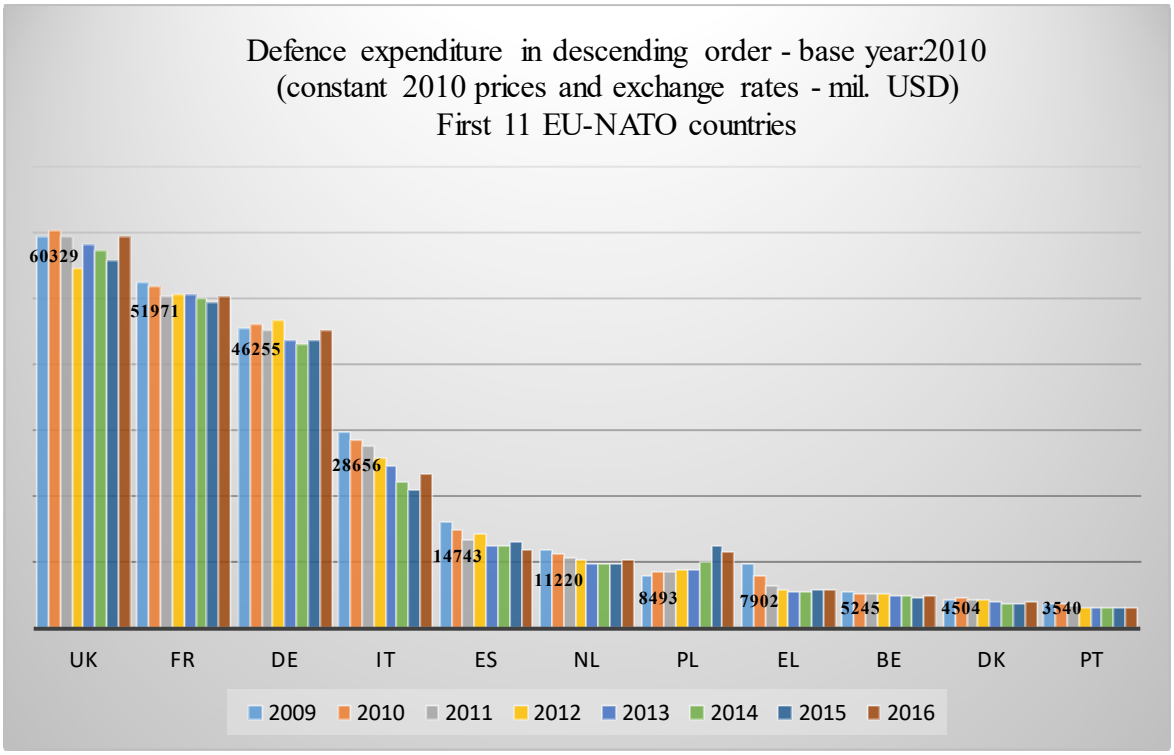

Fig. 3 Defence expenditure in descending order of values – first 11 countries

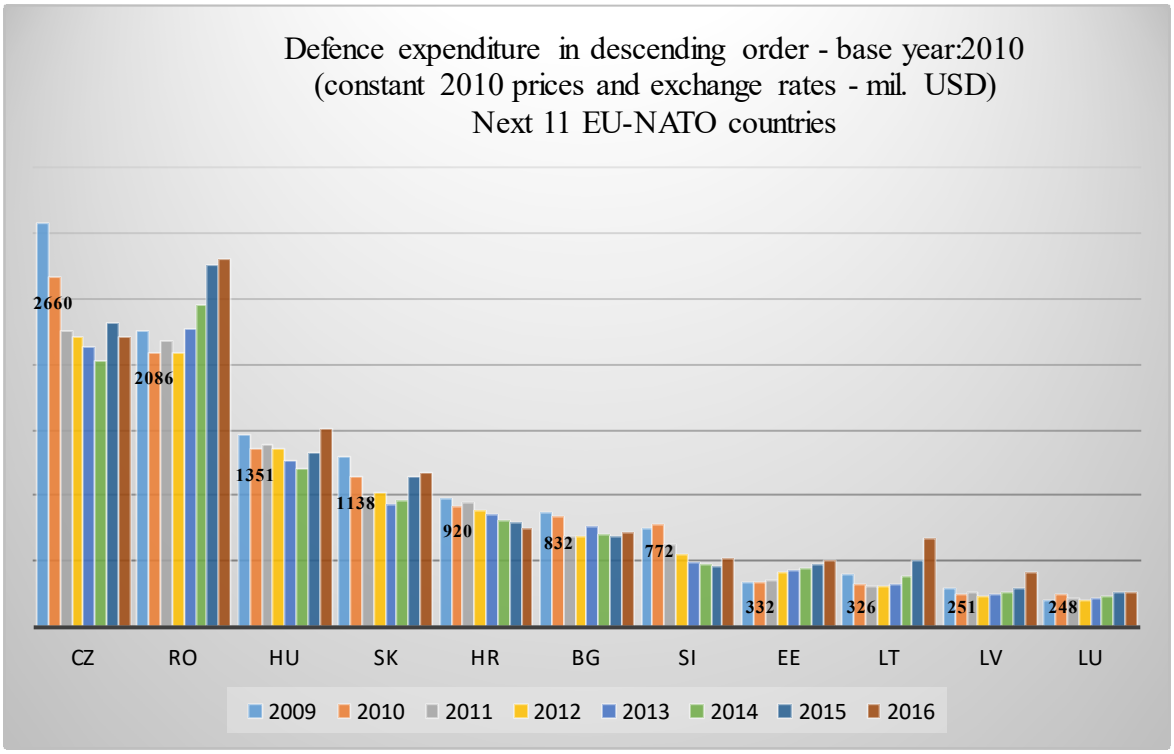

Fig. 4 Defence expenditure in descending order of values – last 11 countries

5. CONCLUSIONS

In the current geo-political context we are considering that Romania needs to

focus more on the infrastructure development and on the equipment acquisition. Also is very important to invest in research and development for the projects involving the production of equipment and programs for the better training of the personnel, complying of course with the NATO guidelines.

6. ENDNOTES

The Nomenclature of NATO defence expenditure, as presented in the NATO Public Diplomacy Division Annual Report is as follows:

1	**Operating costs**
1.1	*Military personnel*
1.1.1	Pay and allowances
1.1.2	Employer's contributions to retirement funds
1.1.3	Other
1.2	*Civilian personnel*
1.2.1	Pay and allowances
1.2.2	Employer's contributions to retirement funds
1.3	*Pensions*
1.3.1	Paid to military retirees
1.3.2	Paid to civilian retirees
1.4	*Operations and maintenance*
1.4.1	Ammunition and explosives (excluding nuclear)
1.4.2	Petroleum products
1.4.3	Spare parts
1.4.4	Other equipment and supplies
1.4.5	Rents
1.4.6	Other operations and maintenance
2	**Procurement and construction**
2.1	*Major equipment*
2.1.1	Missile systems
2.1.2	Missiles (conventional weapons)
2.1.3	Nuclear weapons
2.1.4	Aircraft
2.1.5	Artillery
2.1.6	Combat vehicles
2.1.7	Engineering equipment
2.1.8	Weapons and small arms
2.1.9	Transport vehicles
2.1.10	Ships and harbor craft
2.1.11	Electronic and communications equipment
2.2	*National military construction*
2.3	NATO *common infrastructure*
2.3.1	Expenditure as host nation
2.3.2	Payments to other nations
2.3.3	Receipts from other nations
2.3.4	Land and utilities
3	**Research and development**
3.1	*Devoted to major equipment*
3.2	*Other*
4	**Other expenditure**
5	**Total**
6	Statistical discrepancy
7	**Adjusted total**

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LEADERSHIP TRAINING FOR PEACEBUILDING OPERATIONS

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Threats were specified and in mass in the past, and then are transformed to multi-directional, multi-dimensional, and volatile structure in early 21st century. Hence uncertainty and instability dominate operational area. Today, security is comprehended solely not military but political, economic, lawful, psychological, and technological in a holistic approach. Towards this end, global security environment may be defined with three key words: circulation, complexity, and contingency. Within this context, aim of the mission is to enforce peace and restore stability by proactive measures. However, it seems impossible to have fruitful results in peace building operations by training 21st century people with a mindset of pre-Cold War time. Hence, the study aims at revealing the need for change in curriculum of officers to get deployed in peace building operations. The study, therefore, proposes a unified body taking on nationwide responsibility to manage training operations, and lays out relevant programs and tools to be included in curriculum.

Key words: *Military Leadership, Contingent Leadership, Operational Leadership, Leadership, UN, PKO, Peacebuilding*

1. INTRODUCTION

Peacebuilding operations are missions to provide nations sustainable peace and security conditions aiming to aid in settlement of political stabilization (UN, 2008). We may categorize peacebuilding operations into three groups. Very first operations resolve conflicts between/among parties and secure peace agreements (Kühne, 1999). The United Nations Emergency Force (UNEF), the United Nations Peacebuilding Force in Cyprus (UNFICYP), and the United Nations Disagreement Observer Force (UNDOF) are classical missions (Sigri & Basar, 2014).

Unsuccessful operations following the end of Cold War are the turning point for peacebuilding operations (Kühne, 1999). It is renown that the end of Cold War transformed the civil-military system (Kiss, 2000, p. xiii). Accordingly, the structure of peacebuilding operations changed from passive observation to active participation (Dandeker & Gow, 1997). The missions, aimed to establish sustainable peace environments by removing root causes. The United Nations Transition Assistance Group (UNTAG), the United Nations Operations in Mozambique (UNOMOZ) and the United Nations Transitional Authority in Cambodia (UNTAC) may be some examples in this sense (Sigri & Basar, 2014).

9/11 is another milestone that shaped international security understanding. Threats were specified and in mass, and then were transformed to multi-directional, multi-dimensional, and volatile structure following 9/11. Hence uncertainty and instability dominate operational area. Today, security is comprehended solely not military but politically, economic, lawful, psychological, and technological in a holistic approach. Dillon (2005) describes global security environment with three key words: circulation, complexity, and contingency. Within this context, aim of the mission is to enforce peace and restore stability by proactive measures. The United Nations Protection Force (UNPROFOR), the United Nations Mission in Haiti (UNMIH), and the United Nations Transitional Administration for Eastern Slavonia, Baranja and Western Sirmium (UNTAES) are first examples of this generation (Sigri & Basar, 2014).

In concordance with this comprehension, peacebuilding operations range humanitarian aid to relief, military-civic cooperation to riot, infrastructure reconstruction to reconciliation, counter insurgency to public relations. Peacebuilding operations have a proactive structure that strengthens fallen states, projects power to hinder terrorist attacks, and stabilizes environment bewildered by insurgents.

The success of peacebuilding operations heavily depends upon managerial skills (Sigri, 2015). Hence, leadership is a multiplier that missions easily and better adapt to changes. Contingency leadership is reshaped by imminent threats, uncertain characteristics of operational area, and ongoing peacebuilding operations. Dupuy (1979, p.39) lists leadership as well as training, morale, and logistics as major components of operational effectiveness. As McCall (1998) stresses that leadership development is aligned with strategy. National strategies do not focus threats required by military or diplomacy anymore; instead, a broader concept including employing intangible means is in use (Caudle, 2009). Yarger (2008) mentions politic, economic, socio-psychological, and military powers to protect national interests. Nations, thus, seek collaboration and cooperation with regional contingencies and other nations, to power projection prior to conflicts as deterrence.

Towards this end, it is unanimously contended that change in media, science and technology, the Internet, globalization, socio-cultural aspects, and environmental management leads to the need to revise qualifications of a peacebuilding operation leader. Also change of actors in the field is the fundamental reason of the need. For instance, non-governmental organizations, in particular, are a part of conflicts and nontrivial actors of resolutions (Caforio, 2013). Moreover, speed of change and degree of uncertainty is ever growing. However, leaders are still trained in conventional manner that they are ~~net~~ mentally, physically and psychologically ready for contemporary peacebuilding operations. Operations other than war require extra commanding knowledge, skills, and abilities than conventional war concept. Moreover, peacebuilders have roles as a negotiator, a mediator, an information collector, a surveyor, and a facilitator differentiating themselves than traditional missions (Juvan & Vuga, 2011). Sigri & Topcu (2012) underline~~s~~ the significance of training peacebuilders in order to gain mentioned competencies. Similarly, Day and colleagues (2009) highlight the need to give impetus to leader development. Öztürk (2015, p. 127) stresses deficiencies in competencies of militaries deployed in overseas missions.

Begec (1999) points that army leaders need to be ready to take on responsibilities in supranational contingencies. Sigri (2015) investigates convenient leadership skills for peacebuilders and recommends authorities to develop a pre-deployment training curriculum.

To the authors' best understanding; it seems impossible to have fruitful results in peacebuilding operations by training 21st century people with a mindset of pre-Cold War time. Hence, the study aims at revealing the need for change in curriculum of peacebuilders to take on deployments in peacebuilding operations. The study, therefore, proposes a unified body taking on nationwide responsibility to manage training operations, and lays out relevant programs and tools to be included in curriculum.

2. BACKGROUND

Following Cold War, there is an instable and uncertain environment resulting from micro nationalism, desire for independency, sovereignty demands, terrorism, ethnic cleansing, mass destruction weapons proliferation, radical Islam and fundamentalism. Due to changes in the threats, security is reconsidered all around the world. Transition to multi-polar world has long-term consequences for defense security systems all over the world (Heidenkamp et al., 2011). For instance, NATO modified its role aftermath dissolution of Soviets. Collective defense is

redefined and collective security is introduced. NATO accepts collective security as shared responsibility for international order. Another significant step is the change in UN manner towards peacebuilding operations (Yost, 1998). UN (1992) introduced its agenda for peace and stressed significance of preventive diplomacy that peace and security are not independent of humanitarian aid. This is very similar with NATO strategic concept including employing civil resources into peacebuilding process.

Future scenarios regarding conflicts and force generation are discussed by several authors. For instance, Kaplan points failed states, scarce resources, and ethnic violence as sources of conflicts and focuses on peacebuilding to prevent war and slaughter. Likewise, Toffler stresses the gap between first wave culture and the rest and believes in that technical capacity and information retrieval raises awareness on asymmetric threats. On the other hand, Huntington highlights cultural conflicts at vulnerable countries such as Turkey, Russia, and Mexico and underlines identifying national interests to overcome threats, and war against terrorism. A comparison of discussion is given below.

Table 1. Future Scenarios regarding Conflicts and Force Generation (Snadgrass, 2000, p. 17)

	Sources of Conflicts	**Expected Results**	**Recommendations for Force Development**	**Possible Missions Other than War**
Kaplan	Failed States Scarce Resources Ethnic Violence	War and slaughter	Focus on peacebuilding	- Peacebuilding - Humanitarian Aid - Counterinsurgency - National Aid
Tofflers	Conflict among first and second cultural wave and third wave	Failed states struggle with third wave cultural dominance. Asymmetric threats arise.	Focus on technical capacity and information retrieving. Awareness on asymmetric threats	War against terrorism Armaments Control
Huntington	Conflicts between/among 7th and 8th region people	Cultural conflicts at vulnerable countries such as Turkey, Russia, and Mexico	Stress on identifying national interest to overcome threats, and war against terrorism	Security Support War against terrorism National Aid Armaments Control

It is clear that it is impossible to be successful in peacebuilding operations with a mindset of pre-Cold War time. We need to redefine threats, operational area, and workforce requirements. As a good starting point, Caudle

(2009) lists the drivers of change in security concepts as follows:

- Diffusion of power instead of polarization
- Active role of non-state actors
- Proliferation of mass destruction weapons
- Natural disasters
- Espionage
- Migrations
- Scarcity of oil
- Pandemics
- Sustainability
- Climate change
- Economic crises
- Weaknesses in democracy
- Socio-economic vulnerability resulting from business world
- Poverty and income gaps

Following identifying the future warfare, problematic areas awaiting decision-makers, it is absolutely obvious that a proactive plan will be required. Thus some new operational areas are introduced. For instance; operations other than war (OOTW), proposed and declared by the U.S., are organized to restore regional stability, protect democracy, establish or sustain formal regime, provide humanitarian aid to the poor, advocate national interests, and assist governmental organizations. As conventional war aims to gain a victory by destruction of target's war fighting ambition and determination, OOTW has more political aims like deterring war, conflict resolution, building peace, and assisting governmental organizations (Tucker, 1998, p. 3).

By means of the concept of OOTW, civil-military relations are transformed. Civilians are considered major component of military since reaching hearts and minds of civilians is a prerequisite for the success (Kiss, 2000, p. 20). Civil work in peacebuilding operations includes local government's operations and functions. Civil-military cooperation (CIMIC) may review civil authorities' competence, communicate with civilians, control allocation of resources, and coordinate with international organizations. CIMIC personnel are expected to have knowledge on local culture and languages (Hasskamp, 1998).

To this end, in addition to conventional skills, we may list capabilities of a deployed contingent to operate in OOTW.

- Facilitating returning displaced people,
- Establishment and sustainment of public security,
- Coordination of reconstructing economy and infrastructure,
- CIMIC equipped with technology and local language,
- Conducting psychological operations to assist implementing military and politic decisions
- Running PR center in the operational area
- Conducting media relations,
- Consulting higher HQs on legal issues,
- Regulating relations with host nation, and
- Providing support on political issues.

Aftermath, organizational structures of contingencies are changed. Post-modern perspective presents smaller and more professional bodies. Supranational and regional organizations are considered a must for nations to collaborate for international order and mutual future. Regional contingencies are, therefore, formed. For instance, Organization for Security and Cooperation in Europe is reformed for more inclusive Europe in 1990. AFRICOM is another example to play a major role rather than international organizations, i.e. UN, NATO, and EU. Some other institutions such as SEEBRIG are established to further cooperate and work together prior to crises. Although, it is believed in that nations, as a part of conflict and located in the region, would find solution easily, this didn't work.

Kiss (2000) researches what lessons-learned of Kosovo war are and future directions are recommended to prevent possible difficulties for peacebuilding operations. Findings by Sigri and Basar (2015) confirm the need of revision of leadership training related to contingencies. The researchers interviews with military reveal that changes in asymmetric warfare necessitate

changes in training. Moreover, Smith (2015) lays out a more decentralized model in the exploration of leadership in peace operations.

Problems related to peacebuilding operations may be grouped into categories as follows (Kiss, 2000; Sigri & Basar, 2015):

- Military terminology;
- Cultural awareness on local area;
- Cultural awareness on deployed nations;
- History about host nation;
- Problem solving and decision-making;
- Effective communication skills;
- Civil-military relations;
- Logistics management;
- Budget management;
- Subordinates' irrelevant performance.

Leadership is the process of influencing and inspiring the others through a shared vision. To this end, leaders in peacebuilding operations need to know how to manage behaviors in multicultural environment, to manage motivation to succeed in volatile, uncertain, complex, and ambiguous operational area, and to manage talents for an effective teamwork. Hence, leaders involved in peacebuilding operations require quite different skills to motivate subordinates. To overcome problems mentioned above, educational curriculum, training programs, and orientations need to be revised and are effectively conducted.

3. SOLUTIONS AND RECOMMENDATIONS

Education and training are effective tools to develop knowledge, skills, and abilities in leader development (Conger & Benjamin, 1999). Preece and Iles (2009) highlight five uncertainties related to executive development as knowledge, career, behavioral, personal, and contextual. Competence-based education is developed to fill the gap. ~~as~~ Reed and colleagues (2004) propose an adaptive model of curriculum development fed by field observations, lessons learned, studies, and researches. According to McCauley and colleagues (1998), formal training is a part of leadership development experiences; therefore, formal education is complemented by lifelong learning programs.

It is certain that organizational effectiveness is positively related to high performance leadership. Key skills for high performance leadership are interpersonal relations and individual work performance.

It seems that there are two main challenges for leadership development: shift in leadership literature and change in operational environment.

Effective peacebuilding operations require additional knowledge, skills, and abilities on the following issues mentioned below (United States Congressional Budget Office Report, 1999, p.7):

- Recognition enforcement of human rights;
- Check points operations;
- Conducting negotiations and mediations;
- Disarming groups;
- Managing dislocated people;
- Civil military coordination;
- Maintaining public order;
- Effective interaction with media.

To this end, competency framework of leadership in peacebuilding operations may additionally include managing cultural differences, soft skills, managing crises, managing technology and innovation, and operating civil-military relations.

Managing cultural differences comprises cultural orientation for host nation, cultural orientation for deployed nations, and diversity management. Conflict with local authorities generally results from unawareness on local culture. Especially civil relations require effective communication and coordination skills that deployed people are not familiar with. In order to operate efficiently and effectively in the area, deployed people need to be equipped with adequate knowledge about local culture, history, language, and traditions. Sigri & Topcu (2012) find~~s~~ out that critical factors for an effective management in highly volatile and complex environment are awareness on cultural differences and deep understanding of other deployed nations' cultures.

Otherwise, conflicts among contingencies are experienced due to share of scarce resources and cultural differences. Cultural integration methods are proposed by Sigri & Topcu (2012) to manage cultural differences.

Crises management addresses leading operations in volatile, uncertain, complex, and ambiguous environment that advert circumstances into opportunities for creativity and flexibility. Change in policies, technology, economy, and society lead to high volatility (Heidenkamp et al., 2011). Operational areas are, therefore, more volatile, uncertain, complex, and ambiguous if operations are performed in diverse regions with decentralized management under less political guidance. Communication, teamwork based on trust, and shared vision are the key performance indicators (Abidin, 2014).

Soft skills are related to interaction and socialization between leaders and others as Northouse (2004) considers problem-solving and social judgment as the heart of leadership skills. Communication problems led by personal deficiencies are highly reported in peacebuilding operations (Yapar, 2001, p. 68). Effective interaction and socialization improve effective communication between the leader and the subordinates. Sigri (2015) reveals that managerial skills required by peacebuilding operations are self-awareness, stress management, effective problem-solving, positive communication, motivation management, conflict management, delegation and accountability, and group dynamics management. Abidin (2014) highlights human dimension of leadership and researches how to improve interpersonal skills to increase adaptability of leaders. Canadian Forces Leadership Institute (2005) gives priority to participation, self-awareness, and influencing. Bartone and colleagues (1998) points out the significance of maintaining soldiers' psychological readiness during peacebuilding operations and make some recommendations on countermeasures. The researchers direct leaders through dealing with the feeling of isolation, boredom, powerlessness, ambiguity, and danger.

Managing technology and innovation is a prerequisite asset for 21st leaders. New generations have far reached a capability using technological solutions to complex problems.

Problems and disharmony in civilian-military relations is the main challenge for peacebuilding operations (Sigri & Basar, 2014, p. 391). Challenges for military to sustain civil-military relations are difference in terminology, culture, concept, mission, and motivation (Metcalfe et al., 2012, p. 29). However, they provide opportunities to use resources effectively and efficiently and to accelerate recovery duration (Braun, 2008). Therefore, George (2002) concludes that operations can be more proactive and cooperative in civil-military relations. Civil-military relations concentrate on governance, infrastructure, economy, culture, humanitarian aid, gender streaming, crisis management, and rule of law (Weezel, 2011, p. 15). Governmental agencies, NGOs, and international organizations make life difficult for military and cases more vague, uncertain, and complex. The more military are familiar with civilians, the more cooperative they are (George, 2002). Otherwise because of organizational culture, a military is reluctant to work closely with international organizations and nongovernmental organizations (Pollick, 2000, p. 59). It may be conceded that military had better start to cooperate with civilians in early phases of operations.

Missions are performed with close work with other nations and other organizations. Pollick (2000) states that 1700 civilian agencies had been active in Bosnia in 1996. Diversity in peacebuilding operations results from personnel with different ranks, services, and nations, local personnel, and people working for nongovernmental agencies. There are also differences in planning, decision-making and employing procedures among agents involved in operations. Although everybody has SOPs in the mission, each perception differs due to cultural differences. Diversity management seems to be a

must for leaders to get along with others and perform the mission.

Education and training programs consisting of above-mentioned skills, ability, and knowledge for high performance leadership in peacebuilding operations may be grouped into five categories.

Figure 1. Education and training programs for high performance leadership in peacebuilding operations.

The first group is undergraduate education for people in uniform, i.e. military, gendarmerie, and police. The forces that change roles and responsibilities in an operational area come from many sources. In order to deal with the forces, well-educated leaders should be equipped with new competencies. Thus, there are three main pillars in undergraduate education system, i.e. academic lectures, physical education and field training. Lectures need to include operations management in stabilization, civil-military relations, humanitarian aid, relief, and counter insurgency. In addition to main lectures, case studies may be embedded in other classes such as leadership, military ops management, war history, and law. Topic areas for a contemporary operational leadership are shown in Table 2.

Basic training comprises the second group. The group aims at sustaining knowledge and equipping peacebuilders with a toolkit for operations. Thus, civil military relations, stabilization operations, counter insurgency operations, humanitarian aid operations, relief operations, riot operations, conflict management may be included in the curriculum.

Predeployment training is a key activity in the program. Official communication style (NATO, UN and host nation), law (engagement rules, international law, host nation law), cultural orientation for host nation and deployed nations, diversity management, group dynamics, effective leadership in uncertain environment and crisis management are the main tracks for a mission-oriented training .

Orientation training is another part of the program, which adapts leaders to the operational

area. Training within the group planned to be deployed would be more effective. Regarding diversity in missions, training prior to deployment is important. Leaders are observed how they treat translators, communicate with other contingents, and affect local people and opinion leaders. Scenario based training is the best methodology for leaders to gain effective soft communication skills, i.e. communication skills.

On-site training is not the final part of the program, but a dynamic and ongoing activity in the program.

Cultural orientation for host nation and deployed nations are repeated on the site upon deployment. Newcomers may be trained by incumbents on the job for a couple of days for more effective results.

Table 1 Topic Areas for Undergraduate Education

Topic Area	Grade
Leadership History Review	1
War History	1
Management and Organization	1
Organizational Behavior	1
Risk Management	1
Stress Management	1
Efficient Communication Skills	1, 2
International Law	1, 2
PR and Media Management	1, 2, 3
Positive Psychology	2
Training Management	2
Strategic Management	2
Change Management	2
Social Responsibility and Sustainability Management	3
Organizational Development	3
Human Resource Management	3
Crisis Management	3
Conflict Resolution and Negotiation Management	3, 4
Innovation Management	3, 4
Mindfulness and Resilience	3
Social Media Management	4
Mentorship and Facilitation	4
Diversity Management	4
Cross-cultural Studies	4
Expat Management	4
Contemporary Leadership Theories	4
Public Diplomacy	4

4. CONCLUSION

The success of peacebuilding operations heavily depends upon leadership skills. Hence, leadership is a multiplier that can easily and better be adapted to changes. Peacebuilding leadership is reshaped by imminent threats, uncertain operational area characteristics, and ongoing peacebuilding operations. To this end, it is unanimously contended that change in media, science and technology, the Internet, globalization, socio-cultural aspects, and environmental management leads to the need to revise qualifications of a leader. Also change of actors in the field is the fundamental reason of the need. For instance, non-governmental organizations, in particular, are ~~a~~ part of conflicts and nontrivial actors of resolutions. Moreover, speed of change and degree of uncertainty are ever growing. However, leaders are still trained in conventional manner and they are not mentally, physically and psychologically ready for contemporary peacebuilding operations. Operations other than war require extra commanding knowledge, skills, and abilities than conventional concept. Furthermore, peacebuilders play roles such as negotiator, mediator, information collector, surveyor, and facilitator.

To the authors' best understanding; it seems impossible to have fruitful results in

peacebuilding operations by training 21st century people with a mindset of pre-Cold War time. Hence, the study aimed at revealing the need for change in educational and training programs for peacebuilding operations. Keeping the need in mind, a curriculum is developed for undergraduate education and some issues are recommended for other types of trainings.

The study introduces an integrated model for leadership training for peacebuilding operations. Future scenarios indicate that overseas deployments will increase and operations at uncertain and volatile areas will be routine. Therefore, we need to revise our training programs in order to have reliable, result-oriented, creative and innovative leaders on the job.

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SECURITY PERCEIVED AS A CULTURAL CONCEPT: THE AMERICAN POLITICAL CULTURE

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The present paper aims to analyze the political acceptance of the concept of security as it helps understanding the issue of national and global security. Power is the most influential factor that determines the behavior of states in the international system and therefore it is the main enemy concerning global peace and order. It is worth to highlight how strategic culture can improve the perception of security. Each state focuses upon its own interests and this aspect does not guarantee that the other states will cooperate for maintaining peace and world order and this situation is continuously feeding the global insecurity. This study focuses on the concept of political culture of the United States analyzing the relationship between culture and politics within the framework of the political system.

Keywords: *security, strategic culture, politics, power, American political culture.*

1. INTRODUCTION

In order to justify the perspective of national security, it is worth to analyze the cultural interaction between nations, following the intercultural communication studies approach.

The communication repository is different from culture to culture and this aspect may lead to serious international issues if the message delivered is not correctly perceived.

The freedom of culture and expression has not only an imperative role in bringing the different nations together but also a role concerning the security issues as different cultural backgrounds involves different interpretations which can be considered a threat to the national security equilibrium.

2. SECURITY AS A CULTURAL CONCEPT

In order to understand the issues of national and global security, an in-depth analysis of the concept of security is required. Power is the most influential factor which determines the behavior of nations in the international system. This situation does not apply only at the

national level, but it also applies at the individual one. Each of us is looking forward to get the power irrespective of the situation, be it an insignificant one.

Some actors on the global stage look for economic power, others are in search for land or even cultural power. This struggle has never ended even though at present it wears a diplomatic mask.

Multifarious theories explain the concept of security as a cultural concept. These theories are divided into two different trends: the realists and the idealists.

On the one hand, the realist theories consider security to be a derivative of power (Desch, 2005:1-3), which means that the nation with enough power has the possibility to acquire security from its dominating position.

On the other hand, the idealist theories perceive security as a consequence of peace, and if a lasting peace is reached then it provides security for all nations (Desch, 2005:1-3).

However, these two different approaches have something in common: namely, both of them perceive war as a major threat for the national security agreeing that a solution that eliminates the possibility of war would eliminate the issue of security from the international system.

According to Lucia Zedner, security is both a state of being and a means to that end (Zedner, 2003: 155-157). She argues that security, as a state of being, can be reflected under objective and subjective conditions.

From an objective condition it takes three forms and the key concept here would be *threat*. The first form is the absolute security condition, which denies any existence of threat; the second form is a neutralization condition, that is, the state is protected from threat and the third one is a condition of avoiding exposure to danger (Zedner, 2003:155-157).

Considering these three different conditions, only the first one does not refer to threat while the others are determined by threat. Thus, security exists only if threat exists. What Lucia Zedner wants to express is that instead of thinking of threats, which requires security control, it can be said that security control requires a threat.

3. SECURITY AND POLITICAL CULTURE

The main purpose of security is focused on states and military conflict. The field of security turned into a highly debatable one among scholars in the post-Cold War era.

One of the objectives of the Cold War was, in fact, the national

security order and this concept fed the desire to develop the discipline of security studies in order to make it relevant to the New World concerns.

National security implies that the state stands as the central subject of security and that the individuals are pieces of the state. The individuals group themselves in communities and communities are brought together by creating cultures through their interactions. All the communities are considered to be a threat to insecure the state since every different cultural environment has the power to affect the politics of that state.

Global security implies that nations are treated as interrelated individuals, namely, one affects the other and they cannot be treated independently. As a result, nations often experience a state of insecurity and an efficient political strategy has always a great impact.

This security disorientation attracts two key concepts: cooperation and conflict (Krausse & Williams, 1996:229-233). These concepts bring together the field of security and the area of political culture. If cooperation is not successful, it leads to conflict.

Security cannot exist in the absence of authority. The fact that a central authority cannot be implemented to prevent global conflicts (Grieco, 1988:497-498) is one of the major problems for global security. That is why certain strategies are needed for the global order to be maintained.

The previously mentioned situation of insecurity is experienced by the United States, too. It has been made insecure because of the existence of other nations, such as, for instance, Russia. Both superpowers aim at increase their autonomy, the safety of their own nations.

4. STRATEGIC CULTURE

The post-Cold War age is rich in debates on the nature of security. There are three roots which encourage these debates: the dissatisfaction of some scholars with the foundations of the field, a challenge that came into being due to the emergence of a post-Cold War security order and the desire to improve the discipline and to make it relevant to the contemporary concerns (Krausse & Williams, 1996:229).

It is important for us to know how the use of force affects the society, the state and the individual by applying an in-depth analysis of the policies used by different states in order to prevent a global disaster.

At the state level, if a good strategic culture is adopted then the state enjoys homeland security.

The concept of "strategic culture" has been used by many countries, such as: Germany, the United States and Russia. It has also been used by NATO.

Strategic culture started to develop in the 1970s. Many scholars consider that the United States of America failed to predict the Soviet reactions because their strategy based on behavioral prediction was wrong. This failure made the scholars understand that every state has its own perception of the national events. Hence, a new tool of analysis came into being, that is, strategic culture.

Jack Snyder defined strategic culture as "the sum of ideas, conditioned emotional responses, and patterns of habitual behavior that members of a national strategic community share with regard to nuclear strategy" (quoted in Longhurst, 2000:302). Thus, strategic culture limits behavior choices.

Colin S. Gray defines strategic culture as "referring to modes of thought and action with respect to force, which derives from perception of the national historical experience from aspirations for responsible behavior in national terms" (Gray, 1986:120). Colin Gray highlights the concept of responsible behavior which stands as reference to a rational approach of strategic culture. Another key expression of Colin Gray is the national historical experience. Every nation has political choices and these preferences are rooted in the national experience of the state.

Culture is highly predominant ~~in~~ over the practice of strategic culture and it might affect a rational approach of the state.

5. CONCEPTUALIZING THE POLITICAL CULTURE

Every nation has a political culture which has the role of a connector between the citizens and government. Political culture is expressed by shared beliefs, values, attitudes and regulations.

Culture itself is central to politics as it offers the context for political insights as well as providing the language for political debates. Thus, it can both unite and divide nations. Political culture can bring nations together by supplying a common language. At the same time, it can divide nations by focusing upon cultural differences and certain interests.

The concept of political culture was first developed by Gabriel Almond and Sidney Verba in the 1960s. According to them, political culture is "that subset of beliefs and values of a society that relate to the political system" (Almond & Verba, 1963:11-14).

The concept of political culture is used to cover a wide range of political phenomena: "Political culture, roughly conceptualized, is the pattern of distribution of orientations members of a political community have towards politics" (Dawson & Prewitt, 1969: 26).

The analysis of the political culture follows three perspectives of the individual citizen's relationship to politics: value perspective, psychological factors and cognitive aspects.

Gabriel Almond is the one who introduced the notion of political culture to the study of politics in his essay on *Comparative Political Systems*, published in 1956. According to Almond, Parsons has provided the basis for his approach. He defines political culture as "patterns of orientation to political action" and orientations as "attitudes towards politics" (Almond, 1956:396).

Parsons' theory uses orientation as a major concept. It is "a structural concept and designates a relatively stable aspect of a system" (Parsons, 1961:337).

The orientation in political culture is relevant due to the relation of the actor (individual / nation) to the object world. How does the actor obtain the orientation that he has? According to Parsons, it is a result of socialization, of internalization of culture (Parsons & Shills, 1951:4-7). Thus, culture sustains the orientation which guides the political culture.

The key terms of soft power and hard power are helpful for better understand the political actions of the states. Soft power refers to cooperation, the power a country has that comes from its history, diplomacy (Nye, 1990:15). Hard power describes the ability of a state to use both the military and economic means to influence the interests of other states.

The strategy of a country which aims at influencing the behavior of other states needs both hard and soft power.

6. AMERICAN POLITICAL CULTURE

United States of America is a leading superpower of the world, position assumed after the dissolution of the Union of the Soviet Socialist Republics in 1991. It is not surprising to see why the United States holds a dominant position in the international political system at present. America's political power is both hard and soft.

The democracy policy is strongly influenced by the political culture of the state. Alexis de Tocqueville claimed that the American democracy was shaped by the ideas promoted in their particular political culture. That is, the values, beliefs and attitudes held by the American

citizens inspired them to involve in solving public issues (de Tocqueville, 1863:68-75).

The American democracy is such a success because citizens acquired a high level of political awareness. Thus, they are willing to cooperate and take an active part in the political life.

Daniel J. Elazar is an important political scientist as well as a pioneer in the political culture studies. He identified four types of political culture. The individualist political culture promotes the liberty and integrity of the individual in society. In a statist culture, individual freedom is lost and served the interests of government and other institution of the state; statist systems have adopted ideologies like communism and fascism.

The civic republican culture suggests a society of community activist citizens, putting the good of the community over themselves. The last one, the traditionalist culture portrays society as being an extended family in which every member performs a role which is assumed, people are bound together by social ties and respect the authority figures (Branson, Vontz & Schechter, 2009:25-40).

Throughout the centuries, United States of America has met three of the four types of political culture. Being a democratic state from the beginning of time, America has absolutely rejected statism.

At present, I strongly feel that there can be found traces of all three remaining types, all of them working together.

United States promotes individualism, idea supported by the *Declaration of Independence* and the *Bill of Rights*. The American citizens are free to carry on with their own interests. The US government must protect the American citizens' individual rights.

At the same time, traces of republicanism can be found, too, since the American citizens are truly engaged with community issues.

Regarding traditionalism, I can see that the Americans are strongly attached to their religion and wide range of denominations which mark their traditionalist culture.

The history of the United States of America is recent. It covers a period of about 240 years, since the *Declaration of Independence* issued in 1776. Roots of American nationalism can be found back to Great Britain. Liah Greenfeld argues that "the story of this development is a direct continuation of the process begun in England in the sixteenth century" (Greenfeld, 1992:402). Thus, the American nation inherited ideas and values of the English nation. Of course, this heritage has influenced the type of nation that America has become.

The political culture of the United States was founded on American nationalism. Nationalism and political culture go hand in hand. Liah Greenfeld argues that ”nationalism is best approached as a type of socio-political ideology representing a set of basic principles which lend themselves to various interpretations and may serve as the foundations of different and contradictory cultural systems” (Greenfeld, 1997:191). Thus, the American nation is fed by an emotional attachment with the idea of nationalism. Under these circumstances, a unique political culture was formed.

The American political culture is strongly attached to its past experiences. The American political culture is focused upon the individual. The Americans are strongly attached to the idea of the individual, human rights, civil liberties, equality, freedom and democracy.

Liah Greenfeld considers that the main quality of the American political culture is its respect for the human rights and the interest of promoting the development of the individual (Greenfeld, 1992:423). And this very quality distinguishes American popular culture from the rest.

7. OPINIONS ON SECURITY AS A CULTURAL CONCEPT: THE AMERICAN POLITICAL CULTURE

7.1 The Questionnaire. In order to find out what is the general perception of people living in the present-day Romania and the United States of America on the concepts of security as a cultural concept and American political culture, I suggest the following questionnaire consisting of a set of 11 questions.

Q1. What is security as a cultural concept in your opinion?

a. a cultural weapon owned by a nation which ensures power;

b. a system which provides national safety and political stability;

c. a solution to interact safely with other nations in the international political system;

d. a concrete way through which a state maintains the citizens’ right of living in a peaceful environment.

Q2. What is your opinion about security as a cultural concept?

a. security ensures safe intercultural experience;

b. security is a consequence of peace;

c. security guarantees the absence of threat in citizens’ life;

d. security eliminates the possibility of war.

Q3. What do you think the main ideas and purposes of security - as a cultural concept – should be?

a. to focus on states and military conflict;
b. to set out nation's priorities into a geopolitical context;
c. to bind communities with different cultural environments;
d. all of the above.

Q4. In your opinion, what of the following should be the main objective of the strategy of security in the international political system?
a. the absence of threat concerning national political values of a state;
b. the capacity to interpret the state's behavior in order to assure safe communication;
c. the ability to overcome the possibility of war;
d. the strength to engage with the most effective strategies in order to maintain national peace.

Q5. Do you agree with the fact that ineffective security strategies could become a threat for the nation?
a. Yes, I fully agree; an ineffective security strategy could lead to a national conflict which may involve military action;
b. I partially agree; ineffective security strategies reveal the weaknesses in the political system of a particular state, which may be improved from that point;
c. I disagree; there is no connection between real national threats and ineffective security strategies;
d. I do not know.

Q6. In your opinion, what does political culture stand for?
a concept which can theoretically explain a state's behavior;
b. a subset of beliefs and values of a society that relate to the political system;
c. the role of a state in global politics.
d. all of the above.

Q7. What do you think is the main connector between the concept of security and the concept of political culture?
a.both concepts aim at the interaction between citizens and governments;
b. political culture supplies the operating background for security devices;
c. political culture can unite nations by safely supplying interaction;
d. the concept of security is imperative to common political interests.

Q8. What do you think are the main attributes of the political culture of the United States of America?
a. it is strongly attached to the democracy ideology;
b. it has the power to influence the behavior of other nations;
c. it is concerned with promoting a civic-individualistic nation;
d. its mission is to spread the freedom worldwide and to end the existing tyranny in the world.

Q9. What is your understanding of the political position of the United States in the post-Cold War era?

a. a new approach with respect to bilateral relations;
b. a preoccupation with the rise of a global market;
c. spreading the liberal democracy;
d. improving global security.

Q10. How do you perceive the concept of power?
a. a cultural device used to achieve a particular aim;
b. a means through which a nation proves its unique role in the international system;
c. it inspires authority in global security issues;
d. a tool to suggest a strong national identity.

Q11. Under what circumstances do you believe a state can become more powerful from a global perspective?
a. rethinking the methodology in the cultural dialogue;
b. rebuilding strategy in order to be politically compatible with the other players within the framework of the international system;
c. setting realistic national goals which can be fulfilled as effectively as possible;
d. contributing to maintain global peace and security, which will increase the nation's prestige.

7.2 The Subjects of the Questionnaire. The previously presented questionnaire has been distributed to a number of 30 subjects aged between 19 and 55 as follows: 5 subjects being 19 years old and representing 16.6%; 11 subjects being 22 years old and representing 36.6%; 5 subjects being 24 years old and representing 16.6%; 2 subjects being 31 years old and representing 6.6%; 2 subjects being 36 years old and representing 6.6%; 1 subject being 40 years old and representing 3.3%; 3 subjects being 47 years old and representing 10% and 1 subject being 55 years old and representing 3.3%, as it can be seen in Figure1.

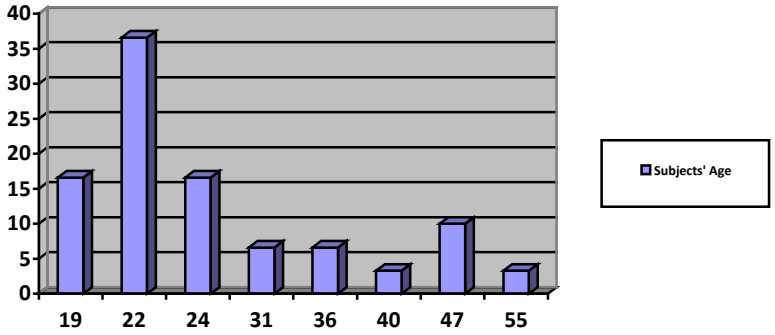

Figure 1. The Subjects' Age

It is worth to mention the sex of the subjects. In order to achieve a balanced result, the sex of the subjects was as follows: 15 male subjects and 15 female subjects, each category representing 50% as shown in Figure 2.

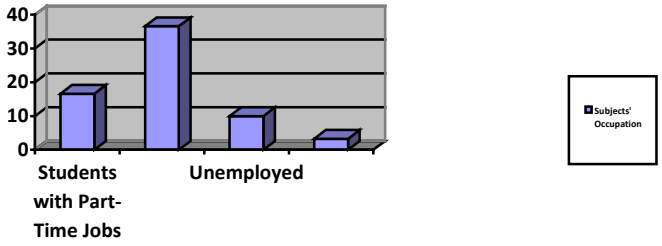

Figure 2. The Subjects' Sex

The subjects' occupation varies from student to unemployed and eventually retired persons. Out of the 30 subjects, 16 are students representing 53.3%, 10 subjects are employed representing 33.3%, 3 subjects are unemployed representing 10% and 1 subject is retired representing 3.3%. It is important to mention that out of the 16 subjects who are students, 5 of them have part-time jobs, which means 16.6% are employed students. The situation is best pictured in Figure 3.

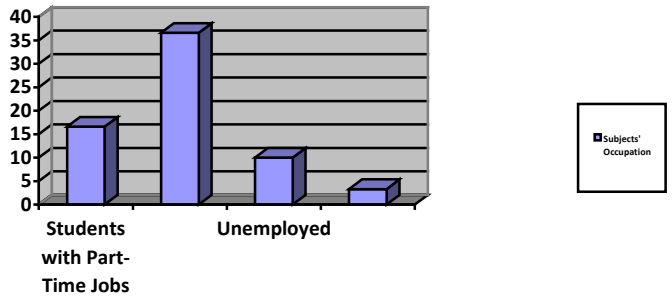

Figure 3. The Subjects' Occupation

Concerning the subjects' level of education, out of 16 students, 11 have already graduated from another higher education institution representing 36.6% while the other 5 are students at present, representing 16.6%. Out of the remaining 14 students, 3 have as their last education degree the high school representing 10%, 8 students graduated from a secondary school and they stand for 26.6%, 2 subjects had home education representing 6.6% and 1 subject had no education standing for 3.3%. Figure 4 below exemplifies best this situation.

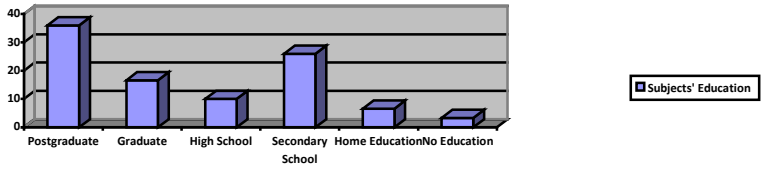

Figure 4. The Subjects' Level of Education

The residence environment splits into 24 subjects coming from the urban environment standing for 80% and 6 students living in the rural environment representing 20% (see Figure 5 below).

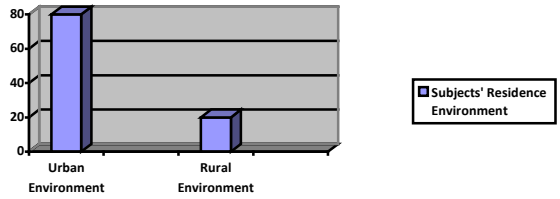

Figure 5. The Subjects' Residence Environment

Regarding the subjects' nationality, 15 subjects have Romanian nationality and 15 subjects have American nationality each category standing for 50%, as Figure 6 shows below:

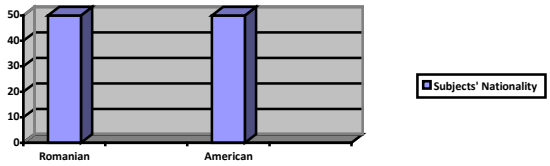

Figure 6. The Subjects' Nationality

Regarding the subjects' religion (see Figure 7), I will split them according to their nationality, as it follows: 17 are Orthodox representing 56.6%, 5 subjects are Roman Catholic representing 16.6%, 4 subjects are Protestant representing 13.3%, 3 are spiritual, but not religious representing 10% and 1 subject has no religion representing 3.3%.

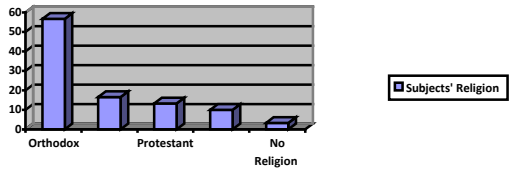

Figure 7. The Subjects' Religion

This study is based on 30 respondents, carefully selected to supply a balanced result. I have chosen an equal number of respondents from both genders and also an equal number of respondents from each geographical area. Given all these facts, it can be noticed that the respondents come from different cultures, thus they meet diversity in their cultural background.

We can say that we deal with the phenomenon of *diversity in unity* due to the various religious backgrounds and nationalities registered in this study based on 30 subjects.

8. INTERPRETATION OF THE QUESTIONNAIRE RESULTS

The present set of eleven questions is centered on the issue of security as a cultural concept and the American political culture.

At the 1st question of the questionnaire about what is security as a cultural concept, a number of 12 respondents (40%) have chosen variant a) considering that security is a cultural weapon owned by a nation which ensures power to it, 5 subjects (16.6%) preferred variant b) believing that security is a system which provides national safety and political stability, 10 subjects (33.3%) have been in favor of variant c) standing for a solution to interact safely with other nations in the international political system and only 3 subjects (10%) have chosen variant d), a concrete way through which a state maintains the citizens' right of living in a peaceful environment.

At the second question of the questionnaire concerning the respondents' opinion regarding security as a cultural concept, 7 subjects (23.3%) considered that security ensures safe intercultural experience, 9 respondents (30%) preferred the idea that security is a consequence of peace, 4 respondents (13.3%) decided that security guarantees the absence of threat in citizens' life and the majority of 10 respondents (33.3%) picked up variant d) as the best answer meaning that security eliminates the possibility of war.

Question number three concerns the main ideas and purposes of security. A number of 10 respondents (33.3%) chose variant a) saying that security should focus on states and military conflict. 5 respondents (16.6%) picked variant b) which says that security should set out nation's priorities into a geopolitical context, no respondent agreed with variant c) according to which security should bind communities with different cultural environments. The majority, that is, 15 respondents (50%), agreed with variant d) meaning all of the above.

The fourth question follows the main objective of strategy of security in the international political system. A number of 10 respondents (33.3%) considered variant a) to be more adequate to their perception, meaning that the main objective of security strategy should be the absence of threat concerning the national political values of the state. Answer b) according to which the main objective should be the capacity to interpret state's behavior in order to assure safe communication was preferred only by 2 subjects (6.67%). A number of 4 respondents (13.3%) suggested variant c) meaning the ability to overcome the possibility of war while the majority, 14 respondents (46.6%), has chosen variant d) the strength to engage with the most effective strategies in order to maintain national peace.

Question number five has the most impressive result so far. Asked if they agree with the fact that ineffective security strategies could become a threat for the nation, 26 (86.6%) of the respondents chose variant a) where they fully agreed with the statement because an ineffective security strategy could lead to a national conflict which may involve military action. Only one respondent (3.3%) has chosen variant b) saying that he partially agrees, because ineffective security strategies reveal weaknesses in the political system. No one selected variant c) meaning they would have totally disagreed with the statement and a number of 3 respondents (10%) claimed variant d) saying they do not know.

The sixth question brings into discussion the concept of political culture. Out of 30, 5 respondents representing 16.6% have chosen variant a) a concept which can theoretically explain the behavior of a state, 5 respondents (16.6%) preferred variant b), a subset of beliefs and values of a society that relate to the political system, none of the respondents liked variant c), the role of a state in global politics, and the majority, meaning 20 respondents (66.7%), favored variant d) all of the above.

The seventh question concerns the main connector between the concept of security and the concept of political culture. 7 respondents (23.3%) picked variant a) meaning that both concepts aim at the interaction between citizens and governments, 3 respondents (10%) agreed with variant b) that political culture supplies the operating background for security devices, other 3 respondents (10%) suggested variant c) according to which political culture can unite nations by safely supplying interaction, but the majority, that is, 17 respondents (56.6%), accepted variant d) which states that the concept of security is imperative to common political interests.

At the eighth question, "What do you think are the main attributes of the political culture of the United States of America?", 2 respondents (6.67%)

agreed with variant a), which suggests that the United States is strongly attached to the ideology of democracy, 3 respondents (10%) favored variant b), which says that it has the power to influence the behavior of other nations, none of the subjects picked variant c) saying that the United States is concerned with promoting a civic-individualistic nation and not surprisingly the majority, consisting of 25 respondents (83.3%), has chosen variant d), the political culture of the United States has as its mission the spread of freedom worldwide and the end of the existing tyranny in the world.

The ninth question highlights the subjects' perception of the political position of the United States in the post-Cold War era. 3 respondents (10%) preferred variant a), a new approach with respect to bilateral relations, 7 respondents (23.3%) favored variant b), a preoccupation with the rise of a global market, the majority of 15 respondents (50%) understood that spreading the liberal democracy is the most accurate answer, while the last 5 respondents (16.7%) have chosen variant d) improving global security.

The tenth question presents the subjects' vision on the concept of power. Therefore, 6 respondents (20%) think that it is a cultural device used to achieve a particular aim (variant a), 4 respondents (13.3%) believe that it is a means through which a nation proves its unique role in the international system, the majority of 20 respondents (66.7%) suggested variant c) according to which the concept of power inspires authority in global security issues. None of the respondents picked up variant d), a tool to suggest a strong national identity.

To the eleventh question, none of the respondents agreed with variant a) that states the fact that a state can become more powerful if it rethinks its methodology in its cultural dialogue. A majority of 15 respondents (50%) perceives a solution if the states rebuild the strategy in order to be politically compatible with the other players in the international system according to variant b). 10 of the respondents (33.3%) suggested that variant c) setting realistic national goals which can be fulfilled as effectively as possible is more accurate while 5 of the respondents (16.7%) suggest the state should contribute to maintain global peace and security, which will increase the nation's prestige according to variant d).

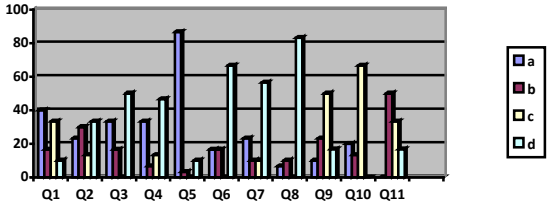

Figure 8. Interpretation of the Data on Security Perceived as a Cultural Concept: The American Political Culture – Questions: 1-11

As it can be seen in the figure above, there have existed six cases representing six answers that have not been chosen by the respondents. The first case refers to the third question, no one picked up variant c) which means that in the general perspective security has no implication on binding communities with different cultural environments.

The second case refers to question number five, there was no answer for variant c). This suggests that there is a connection between real national threats and ineffective security strategies in the general opinion.

The third case can be found in the sixth question, no one liked variant c), meaning that generally political culture is not connected to the role of a state in global politics.

The fourth case refers to the eighth question, variant c), suggesting that the United States of America is not generally perceived as being concerned with promoting a civic-individualistic nation.

The fifth case concerns the tenth question, variant d), meaning that none of the respondents perceives the concept of power as a tool to suggest a strong national identity.

The sixth case can be found in the eleventh question. Asked under what circumstances the subjects believe that a state can become more powerful, none of them selected variant a) rethinking the methodology in their cultural dialogue.

9. CONCLUSIONS

Here are the conclusions drawn after the interpretation of the data of the questionnaire on the concepts of security and power as well as on the phenomenon of political culture here being included the cultural dialogue:

1. Security is perceived as a cultural weapon owned by a nation which ensures power to it;
2. Security eliminates the possibility of war;
3. The main purposes of security are to focus on states and military

conflict, to set out the nation's priorities into a geopolitical context and to bind communities with different cultural environments;

4. The main objective of the strategy of security in the international political system is the strength to engage with the most effective strategies in order to maintain national peace;

5. Ineffective security strategies could become a threat for the nation and can evolve into a military conflict;

6. Political culture is a concept which can theoretically explain the behavior of a state, a subset of beliefs and values of a society that relate to the political system standing for the role of a state in global politics;

7. The main connector between the concept of security and the political culture concerns the imperative role of security in common political interests of nations;

8. The political culture of the United States of America has the mission to spread freedom worldwide and to end existing tyranny in the world;

9. The political position of the United States in the post-Cold War era is based on the spread of liberal democracy;

10. The concept of power inspires authority in global security issues;

11. From a global perspective, a state can become more powerful by rebuilding the strategy in order to be politically compatible with the other players in the international system.

Thus, security is used as a cultural device of one nation and it has an imperative role regarding common political interests shared by nations.

In the post-Cold War era, the United States of America has used its own political culture as a security strategy in order to avoid risk.

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ON THE NEED OF RESEARCH ON THE PHENOMENON OF A PERSON IN THE POLISH SECURITY STUDIES

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Paper indicates the fundamental need of researches that will identify the anthropological basis of Polish security studies as it proves that only human person can be the irreducible subject of all possible security studies. The first part of the article deals with the connection between the way of perceiving man, human instrumentality, axiological horizon that he creates and the concept of security itself. The second part of the article shows the crisis as a problem area which has been organizing scientific discourse for the last 200 years and then the origins of security studies as a kind of response to that crisis are presented. The last part of the paper contains detailed justification of the need to take up in-depth research on the phenomenon of a person in security studies and detailed analysis of problems around which this research needs to be organized and carried out.

Key words: phenomenon of person, crisis, security studies, security anthropology

1. INTRODUCTION

The human rights horizon, the principle of both individual and community personal autonomy, constituting an ideological and organizational foundation of modern democracies result in the fact that, on the one hand, providing common and individual legal, economic and social security is the prime task of political institutions, and on the other, security studies prove necessary not as a next research area, but as a reflection embracing the efforts of social sciences and humanities. At the same time, however, due to the complexity and multidimensionality of contemporary, developed societies, as well as deep dependence in various aspects on political, administrative and economic structures, a human being, an undoubtedly fundamental subject of security becomes utterly problematic in the area of security studies. Hence this article focuses on how crucial it is to point out and justify the necessity to undertake in-depth research on the subjective dimension of security studies.

The first part of the article deals with the problem of a human being as a basic subject of security re-

search and the connection between the way of perceiving man, human instrumentality, axiological horizon that he creates and the concept of security itself. The second part of the article entitled "Crisis and science" will show the crisis as a problem area which has been organizing scientific discourse for the last 200 years.

The third part "Security studies" will present the origins of security studies as a kind of response to that crisis. The fourth and the last part "Research in the field of subjectivity as part of the security studies" will contain a detailed justification of the need to take up in-depth research on the phenomenon of a person in security studies and detailed analysis of problems around which this research needs to be organized and carried out.

2. HUMAN IN SECURITY STUDIES

Many Polish scientists publishing their works in the field of security studies point to a human being. Waldemar Kitler, when defining the subject of research in the field of security studies, claims that this subject is "man, treated as a social entity, and as a specified social community of different ties and conditions"[1]. The same author states unambiguously in a different study: "undoubtedly in all deliberations about security, its subject is always man"[2]. An anthropological perspective, a specific phenomenon of a person is revealed in the statement by one of the pioneers of the Polish security studies, Leszek Korzeniowski: "researchers who take up the problem of security from the position of securitology, place a human being in the center, with his or her needs and values"[3].

The author connects a human being with their needs and values. It seems that in these needs (and satisfying them or not), in these values (and holding on to them or not), the foundations need to be sought for the efforts aiming at creating security. Defining human subjectivity through needs and values may be encountered in many studies in the field of security. Emphasis seems to be, however, placed differently. It

[1] W. Kitler, *Obrona cywilna (niemilitarna) w Polsce*, Ministerstwo Obrony Narodowej, Warszawa 2002, p. 21.

[2] W. Kitler, *Bezpieczeństwo narodowe: podstawowe kategorie, dylematy pojęciowe i próba systematyzacji*. Zeszyt Problemowy Towarzystwa Wiedzy Obronnej, Dom Wydawniczy Elipsa, Warszawa 2010, p. 17.

[3] L. Korzeniowski, *Współczesność i perspektywy nauk o bezpieczeństwie* [w:] L. Hofreiter (ed.), *Współczesność i perspektywy rozwoju badań nad bezpieczeństwiem*, European Association for Security, Zuberec 2016, p. 78.

may happen that needs determine humanity by limiting the subjective autonomy. While values often resemble scattered building blocks which may become a tower proving the greatness of a person or a surface on which they do not always match, which makes them seem a non-matching puzzle – where scattered elements do not show the beauty of the image locked within them.

In this context, Roman Kuźniar's statement seems worth considering: "the ultimate foundation of threats to security and peace is evil which is immanent in a human being and in social forms of human existence"[4]. On the one hand, in the unambiguous statement, the author closes the perspective of further discussion, on the other hand, not only does his opinion refer to the threats, to security and peace, but also to the much more basic issue. The author unambiguously reveals the way of perceiving human nature, determined by evil, and even more than that, being the reason why everything a human being does – "social forms of human existence" – are evil-contaminated. And it is not about the man's encounter with evil, a touch of evil and a resulting contamination, weakness. It is about evil which "is immanent in man". It is impossible not to recognize the anthropology behind such a way of thinking.

If in this point of the article so much focus is placed on one, taken out of context, sentence from Kuźniar's research, it is not in order to talk about the Author of this statement and not to draw any general conclusions about analysis made and solutions suggested by him. The point is only to draw attention to an unavoidable emergence in the thinking about the processes of security building of certain anthropological assumptions, which are not only the basis of the way of understanding man, but also human activity and the quality of human society.

If it is assumed that evil is imminent in human beings and social forms of their existence, and this opinion seems to be shared by many experts in security issues, the question needs to be asked about the methods of counteracting evil in security and peace building processes. How to protect this noble and affirmation deserving effort of individuals, nations and many transnational entities against evil? At the same time, however, if such a question is asked, it is impossible to avoid the one which precedes it: why would an evil person counteract evil which is the foundations of threats and is it even possible?

[4] R. Kuźniar, *Tradycyjne zagrożenia dla bezpieczeństwa międzynarodowego*, in: *Bezpieczeństwo międzynarodowe*, R. Kuźniar i in. (ed.), Warszawa 2012, p. 58.

On the other hand, adopting different assumptions of anthropological nature: utilitarian, perfectionist, deterministic, personality, conservative, progressive, optimistic will necessarily result in a different way of perceiving the role and function of culture, law and politics. It will generate at the same time other questions concerning the stability and quality of social life, to put it directly, concerning security.

3. CRISIS AND HUMAN SCIENCES

Since the 19th century, the scientific reflection has been focusing around crisis. It takes different forms and manifests itself in all aspects of the functioning of the developed societies. Human sciences, such as cultural anthropology, sociology, economics, political science, or philosophy struggle with the diagnosis of human condition and the quality of social life in the era when crisis, fall, instability, decline become basic categories of the reality description. Another aspect of this phenomenon is a departure from the notions of a person, human being in favor of axiological "neutral" terms, such as an individual or a legal entity. This specificity of contemporary human sciences is unfortunately becoming also to a significant extent a part of security studies which use the methodology of these sciences, and hence this phenomenon deserves to be explained.

A classic example of a crisis theory is the Carl Marx's critical theory, based on exposing the instability of the social and economic structure organized around the free market economy, its opportunism, systemic tendency to devastate social life, generating class differences which are revolutionary in their effects. Moreover, the spheres of politics and culture cease to play in this light the role of social life regulators and are perceived as ideologies which are an excuse for the deepening social inequalities[5]. And although great economic crises did not lead, as Marx had predicted, to a universal revolution of the proletariat, because of his theories, criticized, reassessed and developed until today by numerous continuators, Western organizational culture ceased to be identified with the guarantee of security, was "disenchanted" and became to a significant extent a fluent, unpredictable, capricious, sometimes shallow subject of critical analyses, which are characteristic not only for the representatives of the Frankfurt school[6].

At the same time, there appeared another very influential tradition of intellectual criticism of the

[5] Cf. e.g. K. Marx, *Capital*, London 1993.
[6] Cf. e.g. M. Horkheimer, T.W. Adorno, *Dialectic of Enlightenment*, Stanford 2002.

West, which concentrated on the notion of the mass society. At the beginning, it was conservative in nature, and with time also left-wing; it often referred to classical psychoanalysis. From Gustav Le Bon[7], José Ortega y Gasset[8], Erich Fromm[9], to Peter Sloterdijk, to list only the most important ones, we deal with philosophers, sociologists, psychologists who perceive the Western organizational culture in terms of a total crisis, fall and threat to the very basis of human life. Importantly, these analyses were in many respects groundbreaking for the emerging social sciences, and as a result had a permanent influence on them.

What is also connected with the phenomenon of massification, technicality, economic and organizational trivialization of social life, a real or only apparent exhaustion of the potential of premodernist humanities, is the development of existential philosophy, revealing deeper and deeper alienation of the human, disappearance of familiar and tested, pre-modern forms of collective life which are now a thing of the past. Lack of roots, insecurity, anxiety, loneliness, thanks to Arthur Schopenhauer, Søren Kierkegaard, Friedrich Nietzsche, Jean-Paul Sartre, Albert Camus and many others, became a part of the group of notions characteristic for the contemporary reflection upon human condition. The picture becomes full with the numerous voices of philosophers, sociologists, culture theorists and writers who from a conservative and traditionalistic position develop a narrative of a total crisis of the Western civilization, preaching its unavoidable fall, as for example Oswald Spengler[10], or calling for the revival on the basis of traditional patterns and values, as for example Maurras, connected with the French Action (*Action française*)[11].

Due to the above, it cannot be a surprise that for decades now, the most frequently commented works in the field if philosophy of politics include *The Origins of Totalitarianism* [12] by Hannah Arendt or Karl Popper's *The Open Society and Its Enemies* [13], showing fragility and occasional nature of democracy against the overwhelming powers of authoritarian and totalitarian

[7] G. Le Bon, *The Crowd*, New York 1896.
[8] J.O. Gasset, *The Revolt of the Masses*, New York 1993.
[9] E. Fromm, *Escape from Freedom*, New York 1994.
[10] O. Spengler, *Decline of the West*, New York, Oxford,1991.
[11] Cf. e.g. A. Wielomski, *Charles Maurras wobec protestantyzmu* [*in*:] Grott B. (ed.) *Różne oblicza nacjonalizmu*, NOMOS, Kraków 2010, pp. 329-338.
[12] H. Arendt, *The Origins of Totalitarianism*, New York 1976.
[13] K. Popper, *The Open Society and its Enemies*, Princeton 2013.

character constantly present and well-grounded in the Western culture. It is also not a surprise that the international relations became as it were enchanted within the framework of Samuel Huntington*'s The Clash of Civilizations*[14], spelling an inevitable fall of the Western civilization, unable to protect itself against whatever is non-Western, which from the author's perspective means – anti-Western[15]. The book which is commonly included in the canon of the most remarkable sociological works of the last decades is Ulrich Beck's *Risk Society*[16], while such books as Francis Fukuyama's *The End of History and the Last Man* [17] or Immauel Wallerstein's *The End of the World As We Know It* [18] became renowned around the world several years ago, also in the popular culture.

A catastrophic and alarmist dimension of contemporary social sciences and humanities, which use the notions of a crisis, risk, insecurity, disappearance and fall is obviously connected with deep social and economic as well as ideological and political changes. The 19th and 20th century modernism and later postmodernism relate to the fastest and deepest changes in the collective life ever experienced by Western societies. Due to the lack of continuity and the break with the previous organizational culture, the tools that could be used to describe it have become outdated. The new reality requires new tools of self-understanding, especially in the context of threats and security.

Rev. Józef Tischner went somewhat against the flow of the described trend in the contemporary scientific and philosophical reflection in what the notion of conflict implies. As he noticed, crisis is not as much a destructive event, but a great force which awakens and encourages a person to love and live more, to be more. This scientist

[14] S. Huntington, *The Clash of Civilizations*, New York 1997.

[15] Surely Samuel Huntington's conclusions would have been different if he had known the texts by Polish historian and history philosopher Feliks Koneczny, with "O wielości cywilizacji" (En. *On the Plurality of Civilisations*) in the first place, published in Krakow in 1935. It should also be mentioned that Samuel Huntington's inspirations and conclusions concerning civilisations and their clash seen from the perspective of the United States of America lose their focus when the European point of view is taken into account. A French philosopher, Rémi Brague provokes to such a point of view. Primarily, his two works should be mentioned here: *Europe, la voie romaine* (En. *Eccentric Culture: A Theory of Western Civilization*) and *La Loi de Dieu. Histoire philosophique d'une Alliance* (En. *The Law of God. The Philosophical History of an Idea*).

[16] U. Beck, *World at Risk*, Cambridge 2009.

[17] F. Fukuyama, *The End of History and the Last Man*, New York 1993.

[18] I. Wallerstein, *The End of the World as We know It*, Minnesota 1999.

whose contribution to the reflection of Poland upon herself after 1989 and on the perspectives for the development of the ideas of solidarity and freedom still reveals the depth of its wisdom, as if he was not afraid of crises. Just the opposite.

When asked in an interview if he had ever experienced a crisis of faith, he answered – as he always used to do – in a surprising and intriguing way: "No. Or, I would say paradoxically that in my case the faith itself is a crisis. Faith is the core of life. And life means constant dying and rising again. I ask myself many questions which question faith, but they are a part of faith. When a loving person asks: «Do you really love me? », this question belongs to the essence of love and is the sign of its crisis. But, on the other hand, there is joy in this question cooing from the faith that the answer will bring confirmation"[19]. Therefore, a thesis, incredibly important for the topic of this article, might be formed that if nowadays crisis does not refer to a sphere of reality – maybe – this sphere does not exist[20].

4. SECURITY STUDIES

Currently, security studies are conducted in Poland by the majority of important research and teaching, expert and advisory institutions. However, these studies are relatively new – they appeared only with the fall of the USSR and the end of the Cold War when reflection on the military dimension of security turned out to be insufficient for the understanding of completely new threats of social, economic, cultural, ecological and political dimension. It is also one of the fastest developing fields of research, which is a consequence of a huge dynamics of social, economic and political changes, characteristic of late modernity.

[19] *Przekonać Pana Boga. Z ks. Józefem Tischnerem rozmawiają Dorota Zańko i Jarosław Gowin*, wyd. Znak. Kraków 1999, pp. 9-10.

[20] Cf. *Kryzys i prawda. Imperatywy przywracanego porządku*, G. Noszczyk, C. Smuniewski (ed.), wyd. Księgarnia św. Jacka, Katowice 2013. The work contains a contemporary view on crises which became a part of the narrative of different sciences. The monograph includes articles of scientists from different parts of the world and different research environments, including: Giulio Maspero, Gianfranco Calabrese, Janusz Królikowski, John Wauck, George J. Woodall, Grzegorz Noszczyk, Tomasz Szyszka. In the context of the analysis and conclusions presented in this article, a special attention should be drawn to the study by Marian Szymonik. Cf. M. Szymonik, *Aby przezwyciężyć kryzys człowieczeństwa. Humanizm tomistyczny w służbie godności człowieka*, in: Kryzys i prawda. Imperatywy przywracanego porządku, G. Noszczyk, C. Smuniewski (ed.), wyd. Księgarnia św. Jacka, Katowice 2013, pp. 208-222.

Researchers of security, including sociologists, psychologists, economists, political scientists, experts in management, terrorism and fundamentalism, for a few decades now have created theories, concepts as well as reports and recommendations used by political centers of power. However, both interdisciplinary and dynamics of the security studies development result in the instability of their methodological basis lack of unambiguous substantive identity as well as inability to determine the research scope. These are the problems encountered by researchers, which define the deficit of security studies as significant. It questions the cognitive quality of conducted research and the effectiveness of recommendations. A question arises about what the problem field organizing security studies is. What is the actual object of these studies, going them substantive identity and enabling to develop and verify their methodological tools?

5. RESEARCH ON SUBJECTIVITY IN THE FIELD OF SECURITY STUDIES

The above doubts and questions lead to a conclusion that research is necessary in the field of subjectivity emerging within security studies. Irrespective of adopted premises, security studies refer to a subject identified as a nation, state, society, culture or the economy. These collective subjects are, in turn, defined on the basis of which needs of individuals they satisfy, or should satisfy in ideal conditions. An ultimate, irreducible subject of any possible security studies turns out to be man, not as a species and not as an individual, but as a person, because both human species and an individual constitute notions of natural and technical sciences or economics, which do not consider other dimensions of security than the purely quantitative ones.

The aim of so defined research would be to identify a subjective dimension of research conducted as part of the Polish[21] security studies. It is assumed that this research in the area of political science, law, economics, sociology, ecology, culture and military adopts *implicit* the meaning of a basic subject of security, that is a person. A hermeneutical and phenomenological critical analysis of representative for the Polish security studies scientific publications, academic textbooks, expert reports and recommendations should allow identifying their way of defining a person as a being.

[21] Narrowing down the scope of research to the Polish security studies, and the determination of the time span of the published scientific works, reports and recommendations seem to be necessary to achieve the objective of the research.

The above research perspective will require, however, adopting two fundamental methodological stipulations.

The first stipulation is that the notion of a person as a subject contained in the documents under consideration may be built to a significant extent as if *post fatum*. It means that the assumed in advanced objectives of political institutions, dynamics of their activity, their needs as well as the subjective way of perceiving social order and all decisions of ethical character may constitute rigid boundary conditions within which the subject is built whose aim is to fulfill with its activity the place indicated in advance in the system of power as well as in the social and economic system. Hence, an attempt to reconstruct the essence of the subject will require to reconstruct its assumed environment and its predestination in the utilitarian dimension.

The second assumption refers to the comprehensive dimension of the person as a subject and it needs to lead to conducting research which takes into consideration its metaphysical, praxelogical and axiological dimension. All mentioned dimensions may, in turn, require a little different research methodology. Research within the metaphysical dimension of a person in the Polish security studies should take into consideration the following research problems:

- what metaphysical and anthropological assumptions are present in the Polish security studies conducted in the recent decade?
- what connections between the categories of a person, society, politics and security can be found in texts related to security?
- to what extent do authors of texts on security use consciously specific metaphysical assumptions and anthropological concepts?
- to what extent and how accurately and consistently do authors of studies on security justify their understanding of a person, his/her dignity and tasks faced?

Research within the area of praxeological dimension of a person in the Polish security studies should be based on the following detailed research problems:

- what forms of conscious and purposeful activity of the subject of security do appear in the texts in question?
- to what extent do authors of the analyzed texts take into consideration the historical, cultural context, activities of a person with reference to security?
- to what extent do authors of security studies take into consideration the reflection on the understanding of a person from the point of view of revealing it in action and through action?

- to what extent do authors of security studies take into consideration the reflection on the issue of existential threat, insecurity in human life?
- to what extent are authors of security studies aware of the need to look for balance in human thinking and activity?
- to what extent do authors of security studies justify the existence of the connection between an action of a person and the whole of his or her life?
- in what way does the "ontology of action" adopted by the authors enable developing of the culture of dialogue and respect towards otters?

As for the axiological dimension of a person in the Polish security studies, the following issues need to be taken into consideration:
- what ethical and aesthetic values are present in security studies?
- to what axiological orders do these values belong?
- to what extent do authors of security studies consciously operate on the axiological ground?
- to what extent do authors of security studies justify the choice of values?
- what image of a person as the subject of security studies emerges from security studies in the ethical and aesthetic aspect?
- what image of social and political reality emerges from security studies in the ethical and aesthetic aspect?
- how consistent is the axiological foundation of security studies?

6. CONCLUSION

The above postulated identification of the subjective dimension of research conducted as part of the Polish security studies is an essential condition of effectiveness of all security building processes. Without the understanding of the phenomenon of a person in thinking about security, without the description of anthropology being the basis for the Polish security, there cannot be expected any consistent security studies focused on a clearly defined objective. Security anthropology[22],

[22] As for building and developing security anthropology cf. C. Smuniewski, *Człowiek zagrożony. Perspektywa wykorzystania teologii w rozwoju nauk o bezpieczeństwie*, in: *Pragnę żyć! Interdyscyplinarna dyskusja o bezpieczeństwie i godności życia ludzkiego*, P. Wójcik, M. Składanowski, T. Syczewski, J. Połowianiuk (ed.), Lublin 2014, pp. 61-88; C. Smuniewski, *Wprowadzenie do teorii walki cywilizacji w naukach o bezpieczeństwie*, in: *Metodologiczne i dydaktyczne aspekty bezpieczeństwa narodowego*, W. Kitler, T. Kośmider (ed.), wyd. Difin, Warszawa 2015, pp. 82-103; C. Smuniewski, *Czy systemy cywilizacyjno-kulturowe mogą przybierać charakter konfliktogenny? Z namysłu nad fundamentalizmem i ekstremizmem*, in: *Europa w dobie przemian. O wielokulturowości i bezpieczeństwie*, C.

discovered and built, seems to be one of fundamental elements in the creation of the integral system of processes forming national security in its great complexity, in which, in its every element, there is a human, as a creator or recipient – the subject.

The analysis of the beginning of the 21 century allows concluding that no state can individually answer the challenges concerning international security. Especially such issues as: terrorism, migration, global warming requires cooperation and agreements on the global scale. One of potential elements of this cooperation seems to be recognizing the situation at the level of reflection on man as the subject of security studies. No one should be persuaded that it is impossible to think about security building without the possibly of deepest reflection on man in the whole of his/her complexity.

This complexity and recognizable tensions, anxieties and desires seem to be the basis of conflicts which do not happen without man [man's participation]. Therefore, research on a human subject present in security studies, and so also on

Smuniewski, R. Kobryński (ed.), Oficyna Wydawniczo-Poligraficzna „Adam", Warszawa 2016, pp. 429-472; C. Smuniewski, *L'uomo tra l'inizio e la fine, tra la guerra e la pace*, w: *È già iniziata la Terza Guerra Mondiale? La Chiesa a servizio dell'uomo e della società tra la guerra e la pace*, G. Calabrese, C. Smuniewski (ed.), Canterano-Roma 2017, pp. 13-27. On anthropological foundations of security building processes cf. C. Smuniewski, *Tworząc bezpieczeństwo. O potrzebie budowania kultury życia wspólnego w cywilizacji zachodniej*, in: *Edukacja dla bezpieczeństwa. O kształtowaniu kultury bezpieczeństwa*, A. Skrabacz, L. Kanarski, K. Loranty (red.), Warszawa 2015, pp. 17-35. On security anthropology with the focus on a cultural dimension cf. D.M. Goldstein, *Toward a Critical Anthropology of Security*, "Current Anthropology" Volume 51, Number 4, August 2010, pp. 487-499; *Anthropology and Security Studies*, F.A. Hurtado, G. Ercolani (ed.), Murcia 2013; Ch.B. Cabalza, *The Anthropology of National Security: Towards the Development of a New Epistemology*, Special Edition, "National Security Review", NDCP 50th Anniversary, October 2013, National Defense College of the Philippines, Camp Emilio Aguinaldo, Quezon City, pp. 69-83. The publication by Mark Maguire, Catarina Frois and Nils Zurawski is a distinguishing work. The book presents the results of anthropological research on security with a particular, but not the only, focus on Europe. The authors take into consideration the post-Cold War context, economic crises, securitisation and contemporary processes of changes in national states, their citizens and non-citizens in a deep way. Europe is presented in the book as the space of security industry. *The Anthropology of Security: Perspectives from the Frontline of Policing, Counter-terrorism and Border Control*, M. Maguire, C. Frois, N. Zurawski (ed.), London 2014. A big and important work in the Polish scientific environment is the monograph of the Siedlce scientific environment. Cf. S. Jarmoszko, *Antropologia bezpieczeństwa. Kontury naukowej tożsamości*, Siedlce 2015.

the society, seems to be essential for the reflection upon threats and security building of the future.

ENDNOTES

[1] W. Kitler, *Obrona cywilna (niemilitarna) w Polsce*, Ministerstwo Obrony Narodowej, Warszawa 2002, p. 21.

[2] W. Kitler, *Bezpieczeństwo narodowe: podstawowe kategorie, dylematy pojęciowe i próba systematyzacji*. Zeszyt Problemowy Towarzystwa Wiedzy Obronnej, Dom Wydawniczy Elipsa, Warszawa 2010, p. 17.

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[5] Cf. e.g. K. Marx, *Capital*, London 1993.

[6] Cf. e.g. M. Horkheimer, T.W. Adorno, *Dialectic of Enlightenment*, Stanford 2002.

[7] G. Le Bon, *The Crowd*, New York 1896.

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[19] *Przekonać Pana Boga. Z ks. Józefem Tischnerem rozmawiają Dorota Zańko i Jarosław Gowin*, wyd. Znak. Kraków 1999, pp. 9-10.
[20] Cf. *Kryzys i prawda. Imperatywy przywracanego porządku*, G. Noszczyk, C. Smuniewski (ed.), wyd. Księgarnia św. Jacka, Katowice 2013. The work contains a contemporary view on crises which became a part of the narrative of different sciences. The monograph includes articles of scientists from different parts of the world and different research environments, including: Giulio Maspero, Gianfranco Calabrese, Janusz Królikowski, John Wauck, George J. Woodall, Grzegorz Noszczyk, Tomasz Szyszka. In the context of the analysis and conclusions presented in this article, a special attention should be drawn to the study by Marian Szymonik. Cf. M. Szymonik, *Aby przezwyciężyć kryzys człowieczeństwa. Humanizm tomistyczny w służbie godności człowieka*, in: Kryzys i prawda. Imperatywy przywracanego porządku, G. Noszczyk, C. Smuniewski (ed.), wyd. Księgarnia św. Jacka, Katowice 2013, pp. 208-222.
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ABOUT CIVILIAN MILITARY EDUCATION IN SECONDARY SCHOOLS IN POLAND. AXIOLOGICAL ASPECTS OF THE FUNCTIONING OF MILITARY CLASS STUDENTS BASED ON AN ANALYSIS OF THE RESULTS OF OWN STUDIES

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The present article concerns civilian military education in secondary schools in Poland. The article presents the results of the author's own pilot studies on the axiological aspect of the functioning of military classes in secondary schools in Poland. The objective of the article is to specify the characteristics of the axiological aspects of the functioning of students of military classes based on an analysis of the results of the author's own studies, with particular focus on the interests, dimensions of development of personality traits, and the objectives of the respondents. The research method that was used was a diagnostic survey, the technique was a poll, and the research tool was a questionnaire.After a short description of the origins of military classes and of the research methods used, the authors analyse the axiological dimension of the functioning of the respondents: their interests, the directions of development of their personality traits, and their objectives. The conclusion contains answers to the research problems and a comparison of the values of the students of military classes to the values shared by young persons determined in contemporary studies in Poland.

Keywords: *education, axiology, values, young persons, military classes, civilian military education*

1. INTRODUCTION: THE ORIGINS OF MILITARY CLASSES IN POLAND

The concept of the formation of military classes is linked to the traditions of defence training, preparation of the young generation to defend the country, and strengthening of the bonds between the people and the military. Their contemporary development and nature is the effect of many initiatives taking place in the 1990's, mostly in schools and in the military. It is assumed that the first military classes in the 3rd Republic were experimental classes initiated by the creation by the Ministry of

National Defence and the Ministry of National Education of a joint system for defence education of young persons in secondary schools in Poland. In this experimental formula, military classes existed between 1998 and 2002[1]. Even though the experiment was successful, it was not possible to expand and popularize it. An opportunity for further development of military classes was provided only by the *Regulation of the Minister of National Education and Sport of 9 April 2002 concerning the conditions for conduct of innovative and experimental activities by public schools and institutions*[2] and by the *Regulation of the Minister of National Education of 24 April 2011 amending the regulation concerning the conditions for conduct of innovative and experimental activities by public schools and institutions*[3].

The present popularity of military classes, together with objective, standard criteria of acceptance and attractive curricula, are conducive to the achievement of ambitious didactic and educational objectives[4]. The achievement of such objectives largely depends on the cooperation of military schools and classes with military units and other institutions of the uniformed ministries, as well as on local support. It also depends on the involvement and knowledge of the teachers of military classes and on the values[5] that appear to be characteristic of students of those classes.

This article presents the results of the author's own studies on the topic of axiological aspects of the functioning of students of military classes. In the studies, it was assumed that the axiological dimension of civilian military education in secondary schools in

[1] More information about the pedagogical experiment related to military education in the years 1998-2002 can be found in: M. Kaliński, *Przysposobienie wojskowe młodzieży szkolnej* [Military training of school-age youth], Ministry of National Defense, Warsaw 2000.

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[4] More information on the objectives and curricula in military classes can be found in: L. Kanarski, M. Koter, K. Loranty, I. Urych, *Wstępna diagnoza funkcjonowania klas mundurowych – wyniki badań pilotażowych* [Preliminary diagnosis of functioning of uniformed classes - results of pilot studies], in: *Klasy mundurowe. Od teorii do dobrych praktyk* [Uniformed classes. From theory to good practices], A. Skrabacz, I. Urych, L. Kanarski (red.), Warsaw 2016, pp. 71-82.

[5] In the present article, the term "value" is equivalent to the term "good." The author also defines values as objectives and stimuli that cause people to take certain actions in their lives and to find the sense of living.

Poland can be described with the following three categories: the interests of students of military classes, the directions of development of the personality traits of the respondents, and the objectives of the respondents[6].

This understanding of the axiological aspects of the functioning of the surveyed students of military classes marked the beginning of this document. The article first presents the research methodology and the characteristics of the studied young persons and then contains a diagnosis of civilian military education of the respondents - their interests, directions of development, personality traits, and objectives. The article ends with a conclusion, which contains answers to the research problems and a comparison of the results of the research to the results of contemporary studies concerning the values of young persons in Poland.

2. PERSONAL RESEARCH METHODOLOGY

The objective of the study was to specify the characteristics of the axiological aspects of the functioning of students of military classes based on an analysis of the results of the author's own studies, with particular focus on the interests, dimensions of development of personality traits, and the objectives of the respondents. The practical objective of the study was to improve, based on the results of the study, the research tool, namely the questionnaire, to study the values shared by students of military classes in their own opinions.

The main problem of the empirical study was contained in the following question: What are the characteristics of the axiological aspects of the functioning of students of military classes? In connection with the main problem, three detailed questions were formulated:

[6] This assumption was made on the basis of an analysis of the earlier results of studies on the topic of education in military classes. Cf. e.g. L. Kanarski, M. Koter K. Loranty, I. Urych, *Klasy mundurowe. Wstępna diagnoza innowacji pedagogicznej* [Uniformed classes. Preliminary diagnosis of pedagogical innovation], in: S. Olearczyk, Z. Piątek (eds.), Obronność w edukacji dla bezpieczeństwa [Defense in education for security], Warsaw 2014, pp. 76-90; I. Urych, *Klasy wojskowe – geneza i rozwój* [Military classes - origins and development], in: B.M. Szulc, K. Krakowski (eds.), Dylematy współczesnej dydaktyki obronnej [Dilemmas of contemporary defense teaching], Warsaw 2015, pp. 53-60.

1. What are the respondents interested in?
2. What are the directions of development of the personality traits of the respondents?
3. What are the characteristics of the respondents?

In the study, the diagnostic survey method was used[7]. The research technique was a poll and the research tool was a questionnaire, prepared by the author, with scaling, titled "Questionnaire for students of military classes." In the study, the independent variable of gender, with two indicators: woman and man, was used. The study was conducted in January and February 2017.

Two hundred students of military classes participated in the study. The sample was selected randomly, assuming that the studied schools were randomly selected from among secondary schools that have the so-called military profile classes, which have signed cooperation agreements with the War Studies University in Warsaw. 54.5% of the respondents were men and 45.5% were women (figure 1).

[7] T. Pilch, T. Bauman, *Zasady badań pedagogicznych. Strategie ilościowe i jakościowe* [Principles of pedagogical research. Qualitative and quantitative strategies], Warsaw 2001, pp. 79-82.

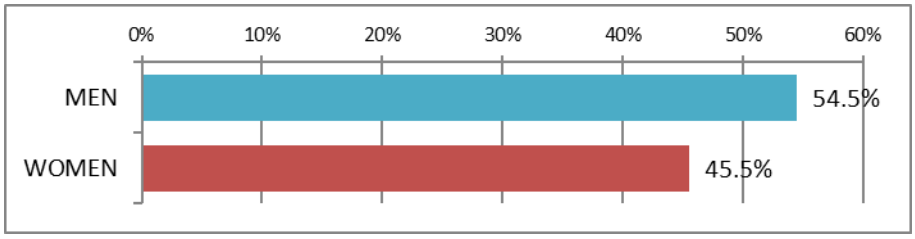


Fig. 1. Characteristics of the respondents according to their gender
Source: prepared by the authors.

The respondents were students of the first grades (39.5%), second grades (36.5%), and third grades (24.5%). The characteristics of the respondents according to their education level are shown in figure 2.

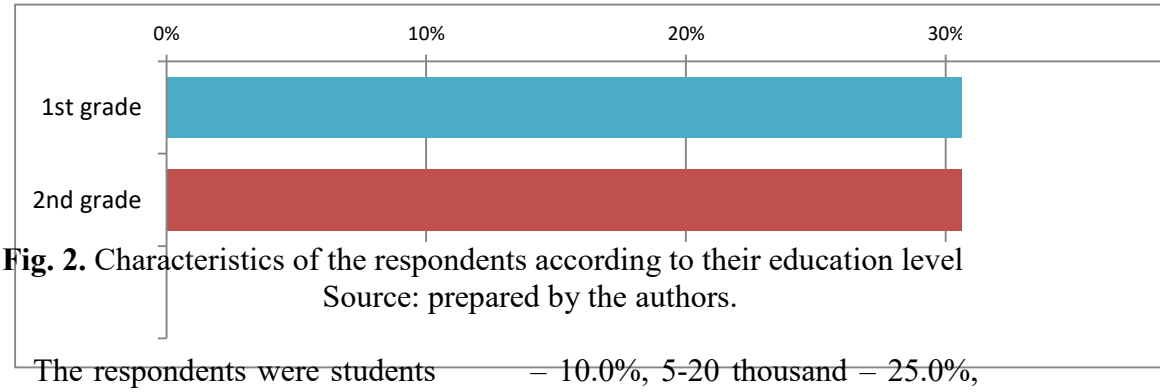


Fig. 2. Characteristics of the respondents according to their education level
Source: prepared by the authors.

The respondents were students at schools functioning in different towns and cities with different population sizes: up to 5 thousand – 10.0%, 5-20 thousand – 25.0%, 20-50 thousand – 22.5%, 50-100 thousand – 22.5%, more than 100 thousand – 20.0% (figure 3.).

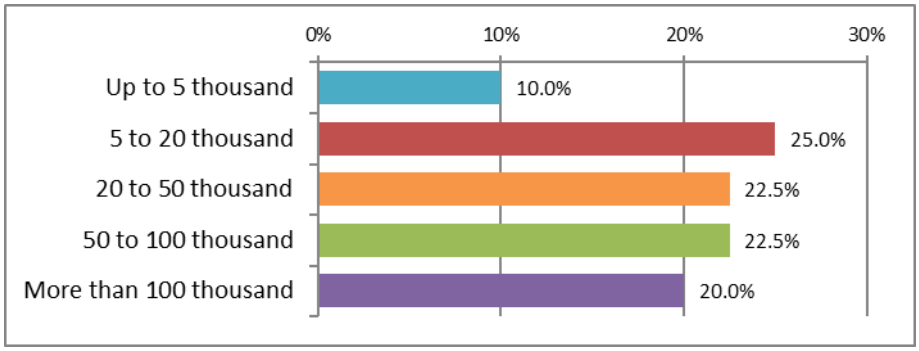
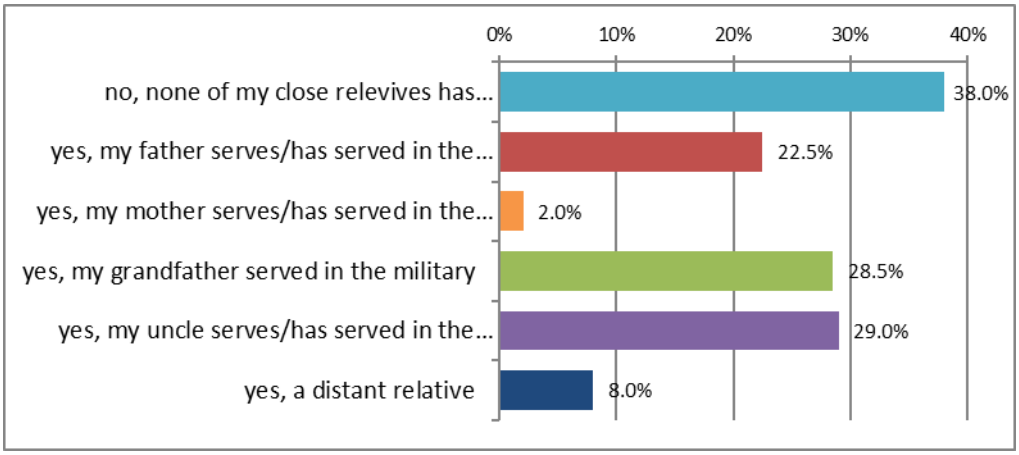


Fig. 3. Characteristics of the respondents according to the size of the town or city in which their secondary schools are located
Source: prepared by the authors.

The study also made it possible to characterise the students of military classes in relation to military traditions in their families. An analysis of the results proves that military traditions were maintained in families of 62% of the respondents. In the remaining 38% of cases, no close relatives of the students served in the military. In most cases, uncles (29.0%), grandfathers (28.5%), fathers (22.5%), and in single cases also mothers (2.0%) or more distant relatives (8.0%) were in active service, as shown in figure 4.



(The results do not add up to 100% due to the fact that many answers could be selected by the respondents.)

Fig. 4. Characteristics of the respondents according to military traditions in their families
Source: prepared by the authors.

3. INTERESTS OF THE STUDENTS OF MILITARY CLASSES

Based on an analysis of the results, it is possible to determine the type and scope of interest of the participating students of military classes (figure 5). Young people were most often interested in health, physical fitness, the Internet, country and patriotism, security and defence, knowledge, family and social life, food, and comfort and convenience. In the specified scopes, the share of the respondents who indicated their

"lack of interest" was lower than 10% but, at the same time, the most often answer was: "low level of interest" - 50-80% of the group.

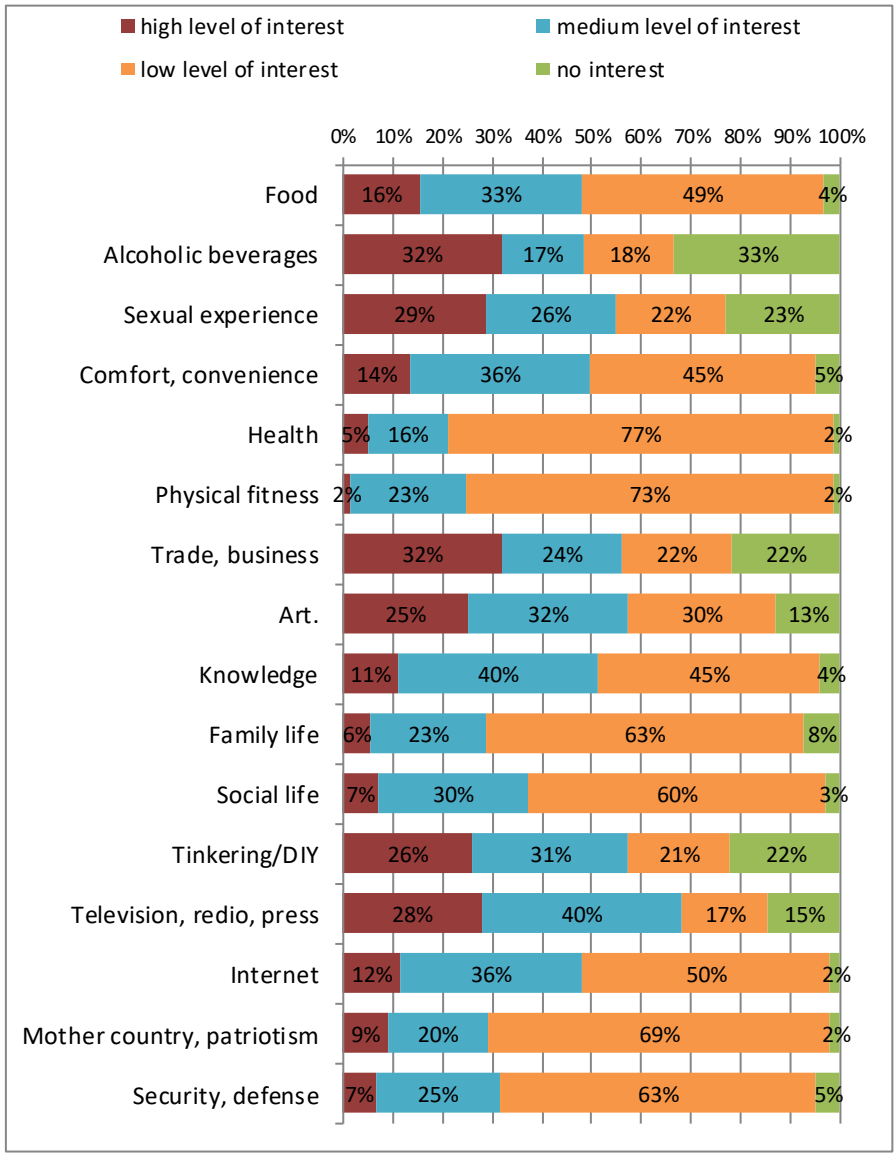


Fig. 5. Categories and levels of interest of the participating students
Source: prepared by the authors.

The level of interest of the participating students is better reflected by such statements as "high level of interest" and "medium level of interest." Most often, the respondents were highly

interested in the following categories: trade and business (32%), alcohol beverages (32%), sexual experiences (29%), television, radio, and press (28%), tinkering / DIY (26%), and art (25%). The categories with medium level of the respondents' interest were: television, radio, press (41%), knowledge (40%), the Internet (37%), comfort and convenience (36%), social life (30%), sexual experiences (26%), security and defence (25%). The sum of those answers gives the real image of the interests of the respondents: television, radio, and press (68%), art (57%), tinkering / DIY (57%), trade and business (56%), sexual experiences (55%), knowledge (51%), comfort and convenience (51%), the Internet (49%), food (48%), alcoholic beverages (48%).

The synthesis of the results was performed, making it possible to define the profile of the interests of students of military classes (figure 6).

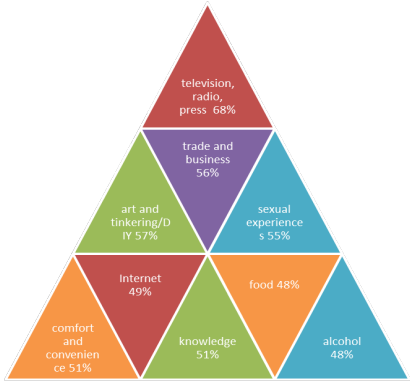


Fig. 6. Profile of interests of students of military classes
Source: prepared by the authors.

The participating men most often indicated high and medium level of interest in the following categories: television, radio, and press (67%), art

(63%), sexual experiences (59%), and tinkering/DIY (59%). They indicated a low level of interest in taking care of their health (22%) and their physical fitness (24%). It must be emphasised that 29% of the respondents were not interested in the consumption of alcohol (figure 7).

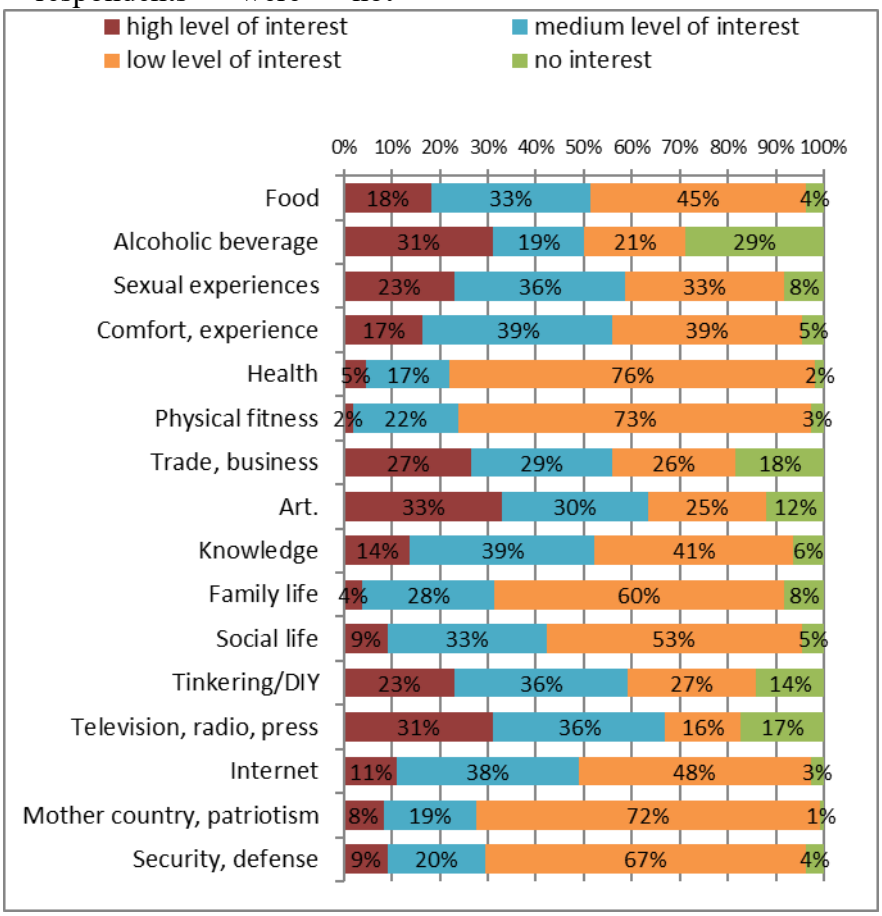


Fig. 7. Categories and levels of interest among male participants
Source: prepared by the authors.

The participating women also indicated their highest-level interest in television, radio, and press (58%) and their lowest level of interest in health (17%), physical fitness (22%), and family life (22%). In the case of the participating women, there were more areas that they were not interested in: alcoholic beverages

(41%), sexual experiences (42%), tinkering / DIY (32%), and trade and business (26%). The categories and levels of interest among the female participants are shown in figure 8.

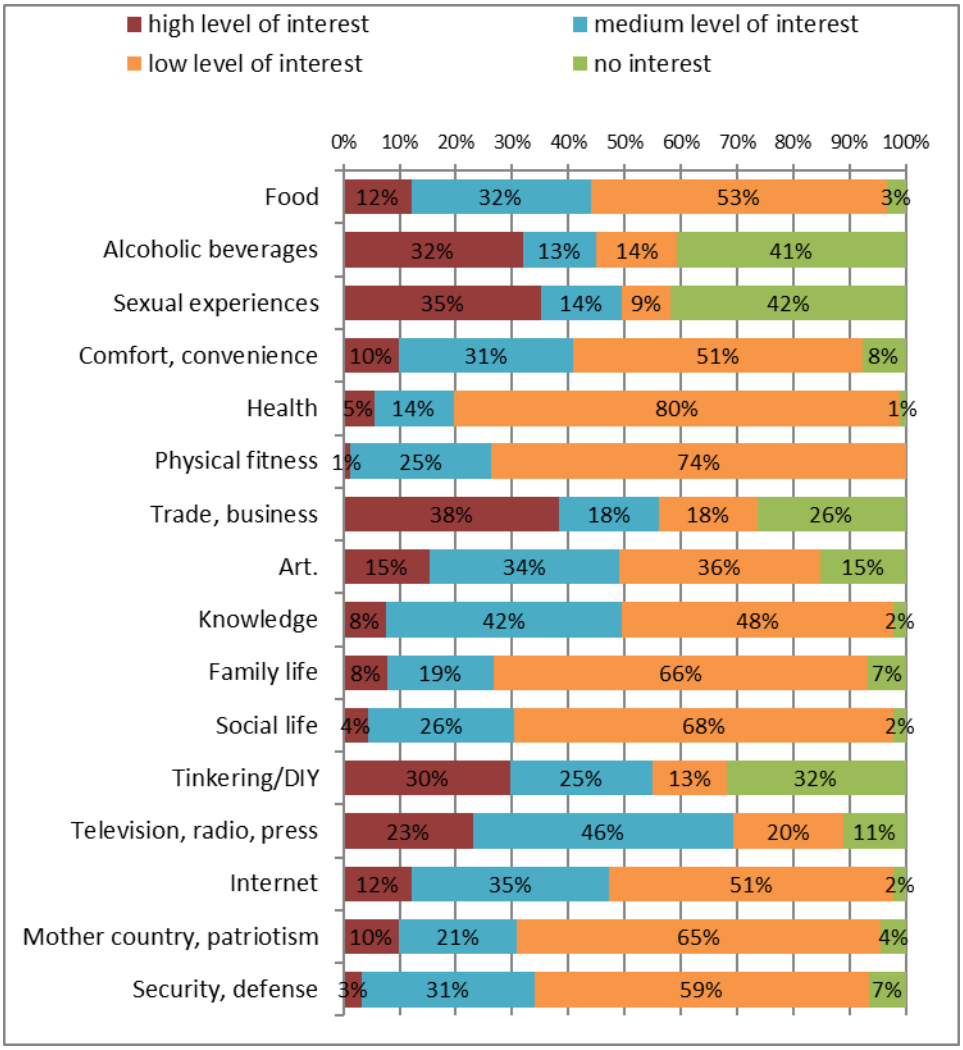


Fig. 8. Categories and levels of interest among female participants
Source: prepared by the authors.

Based on the analyses that were performed, it was found that women were significantly more often than men not interested in sexual experiences, even though in both groups one-third of the participants were highly interested in those categories. The

significantly more men than women indicated a high and medium level of interest in comfort and convenience. It was also found that men were significantly more often than women interested in art (Table 1).

Table1. An analysis of the correlation between the areas of interest and the independent variable (gender), taking into account the Pearson coefficient

Areas of interest	**Variables**		
	Gender	**Age**	**Agglomeration**
Food	0,0842	0,0032	0,1089
	p=0.236	p=0.964	p=0.125
Alcoholic beverages	0,0676	0,1645	0,0908
	p=0.341	p=0.020	p=0.201
Sexual experiences	0,2044	0,1608	0,0213
	p=0.049	p=0.023	p=0.765
Comfort, convenience	0,1563	0,0282	0,0429
	p=0.027	p=0.692	p=0.546
Health	0,0053	0,0160	0,0377
	p=0.941	p=0.822	p=0.596
Physical fitness	0,0454	0,1254	0,0176
	p=0.523	p=0.077	p=0.804
Trade, business	0,0171	0,0810	0,1330
	p=0.811	p=0.254	p=0.051
Art	0,1753	0,0822	0,1140
	p=0.013	p=0.247	p=0.108
Knowledge	0,0314	0,0071	0,0098
	p=0.659	p=0.921	p=0.890
Family life	0,0064	0,0697	0,0435
	p=0.928	p=0.327	p=0.540
Social life	0,1025	0,1767	0,1151
	p=0.149	p=0.012	p=0.105
Tinkering/DIY	0,0644	0,1498	0,0384
	p=0.365	p=0.034	p=0.589
Television, radio, press	0,0029	0,0456	0,0964
	p=0.967	p=0.521	p=0.174
The Internet	0,0018	0,0059	0,0218
	p=0.980	p=0.934	p=0.759
Mother country, patriotism	0,0103	0,0850	0,0263
	p=0.885	p=0.231	p=0.711
Security, defence	0,0303	0,0169	0,0322
	p=0.670	p=0.813	p=0.651

Source: prepared by the authors.

4. DIRECTIONS OFDEVELOPMENT OF PERSONALITY TRAITS OF THE MILITARY CLASS STUDENTS PARTICIPATING IN THE STUDY

The objective of the study was to determine the direction of development of the personality traits of the participating students of military classes. An analysis of the results of the study makes it possible to conclude that in the study group of military class students, a half of the respondents declared that they worked on their own character in the area of responsibility (55%), discipline and dutifulness (51%), and strong will (50%). Approximately 40% of the respondents indicated a need for an increase in their courage, courteousness - 39%, diligence - 36%, and patience 28%. One in four students worked on their independence (26%), honesty (25%), knowledge and competence (25%), and opposing human suffering (23%). The members of the study group the least often indicated a need for work on friendliness and goodness towards others (16%), thriftiness (13%), kindness (11%), and unselfishness (8%). The directions of development of the personality traits of the participating students are shown in Figure 9.

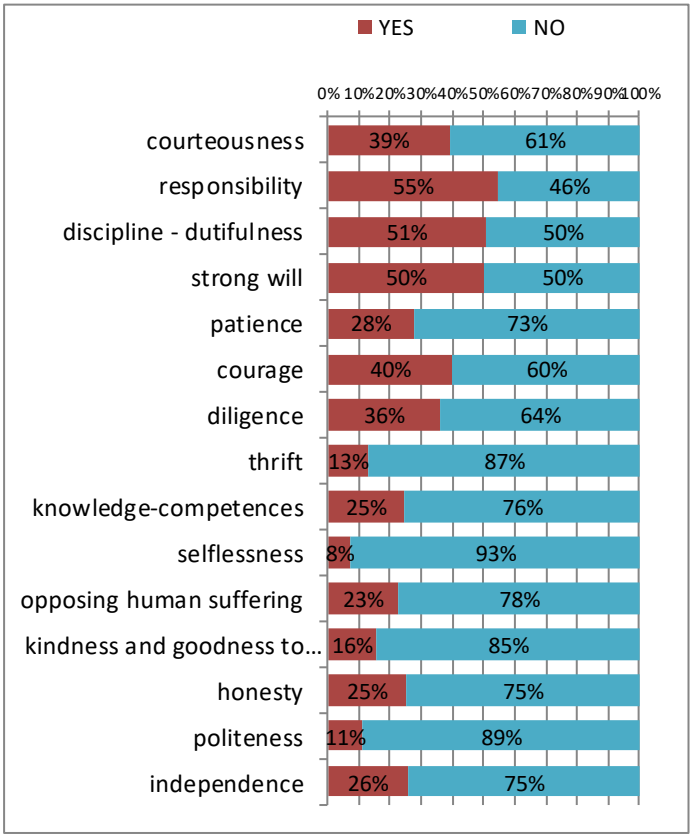


Fig. 9. Directions of development of personality traits of the students participating in the study
Source: prepared by the authors.

The five personality traits that men indicated as the areas that they must work on were: responsibility (55%), discipline and dutifulness (50%), strong will (50%), courteousness (42%), and courage (40%). The directions of development of the personality traits among the participating male students are shown in Figure 10.

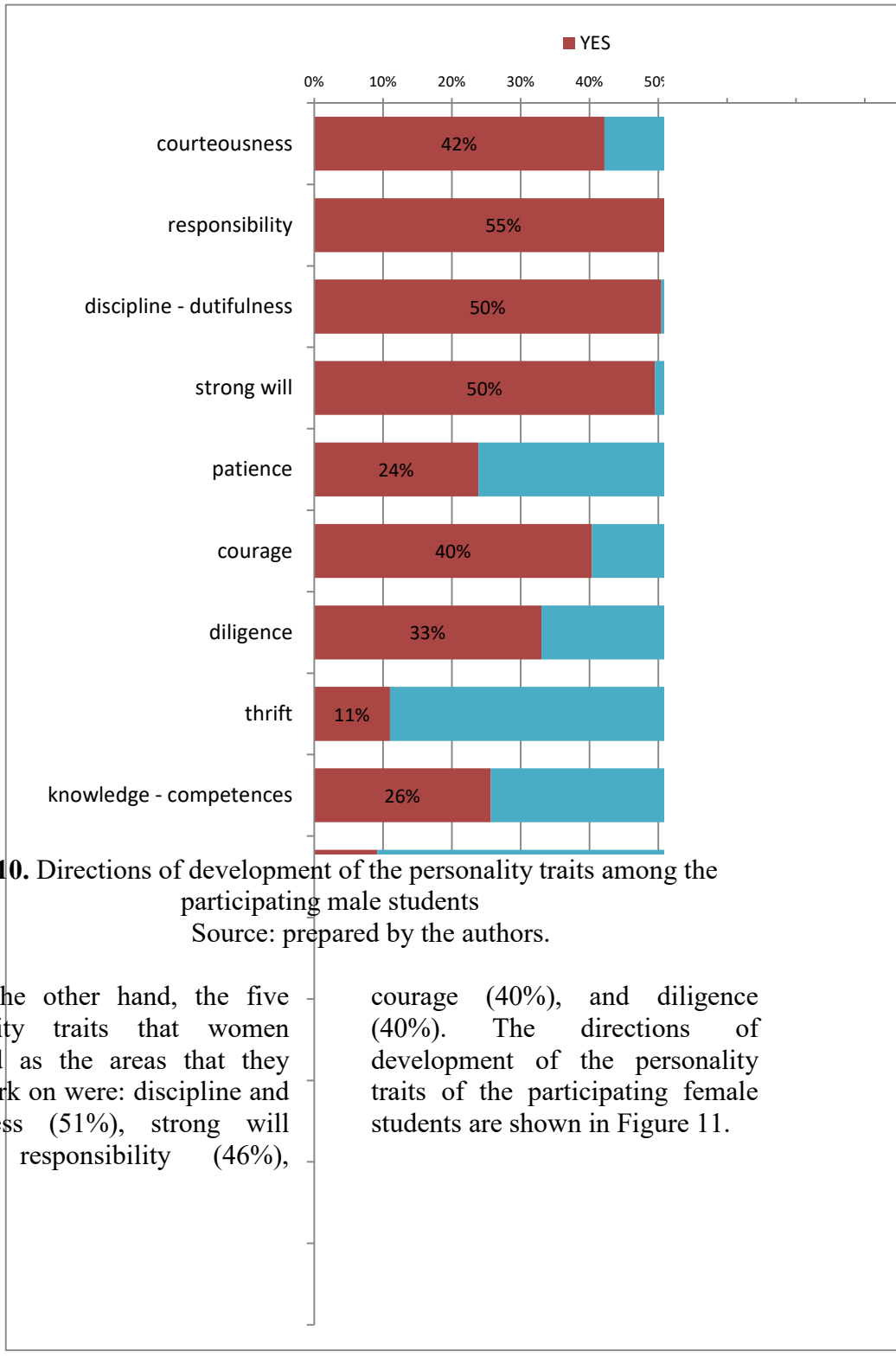


Fig. 10. Directions of development of the personality traits among the participating male students
Source: prepared by the authors.

On the other hand, the five personality traits that women indicated as the areas that they must work on were: discipline and dutifulness (51%), strong will (51%), responsibility (46%), courage (40%), and diligence (40%). The directions of development of the personality traits of the participating female students are shown in Figure 11.

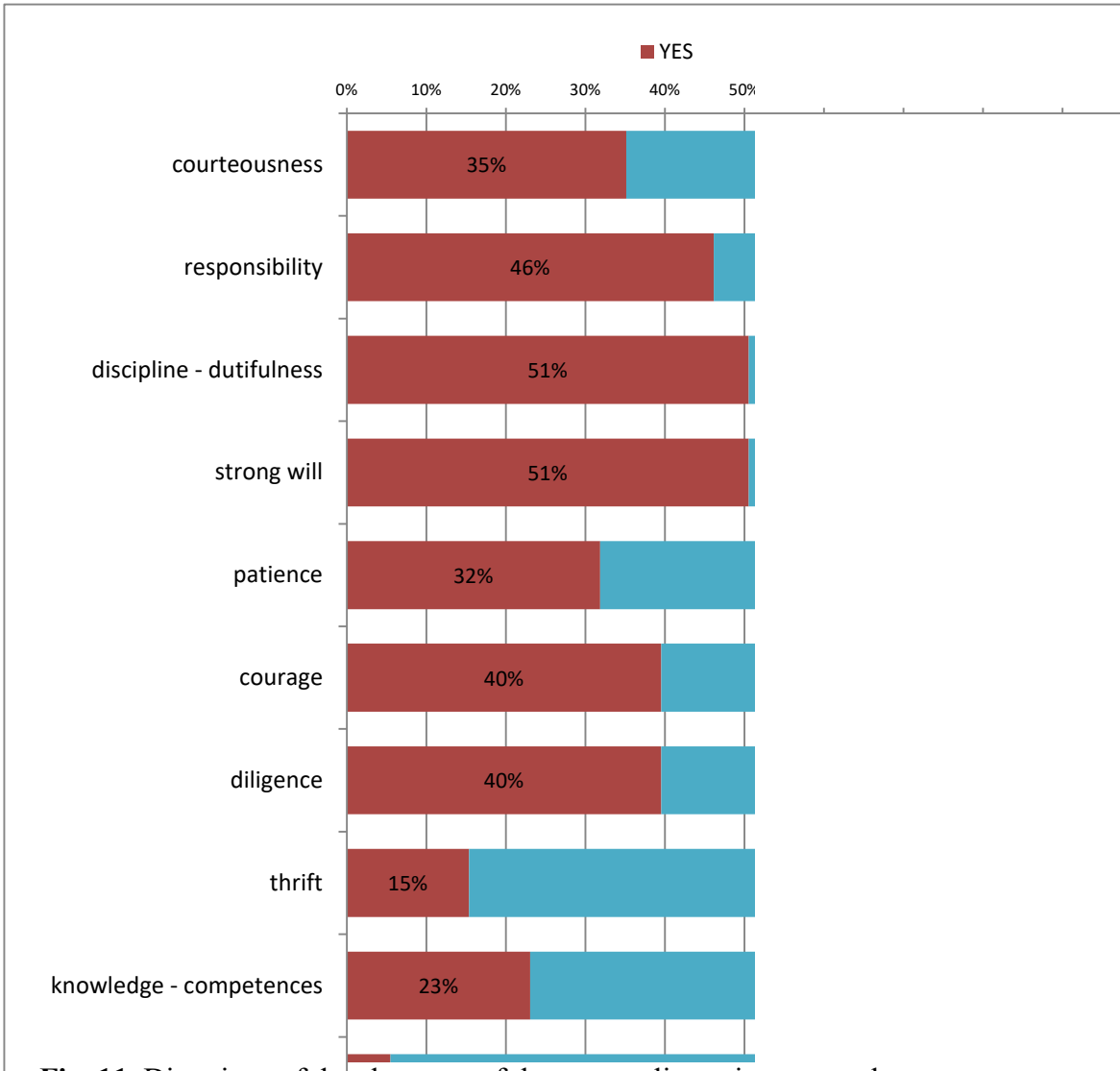


Fig. 11. Directions of development of the personality traits among the participating female students
Source: prepared by the authors.

In conclusion, students of military classes feel the need to work on their responsibility (55%), discipline and dutifulness (51%), strong will (50%), courage (40%), and personal culture (39%). The views of women and men in this area are comparable to the general profile of the group (Figure 12).

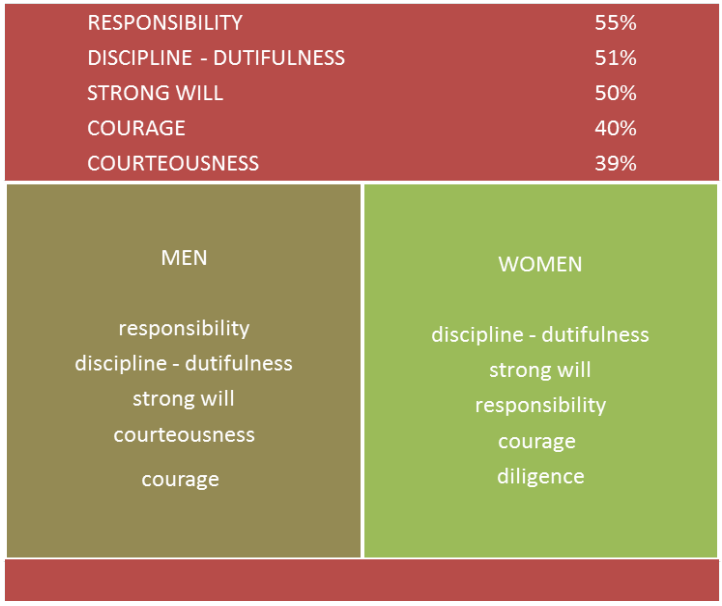


Fig. 12. The profile of development of personality traits among students of military classes
Source: prepared by the authors.

5. THE OBJECTIVES OF THE PARTICIPATING STUDENTS OF MILITARY CLASSES

Based on the study, the objectives of students of military classes can be identified (Fig. 13). An analysis of the results proves that the respondents were the most interested in the following objectives: interesting job (98%), successful family life (97%), reciprocated love (94%), gaining respect and social recognition (93%). The range of 80-90% was obtained for the following values: high income and easy life (89%), earning a university diploma (86%), a life full of adventures (84%), obtaining material values (83%), and many friends (80%). 69% of the respondents were interested in a military career (48% were definitely interested and 21% were rather interested). Only 11% were not interested in military service. 61% of the participating students expected to hold leadership positions (34% definitely and 27% probably). The participants indicated their strongest interest in scientific careers, which 30% of the respondents considered (11% definitely and 19% probably) and

38% rejected (23% rather rejected and 15% definitely rejected).

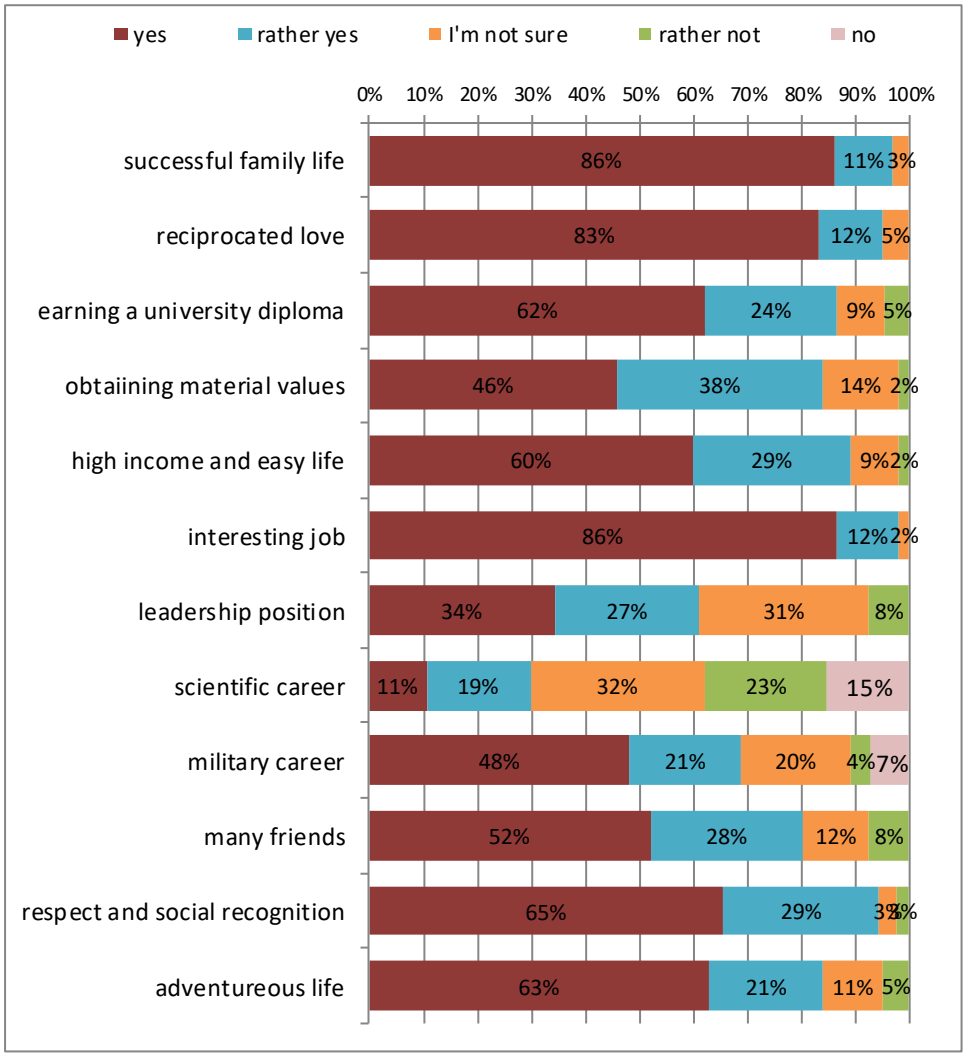


Fig. 13. The objectives of the participating students of military classes
Source: prepared by the authors.

The participating male students declared that what they wanted was: interesting job (97%), successful family life (95%), gaining respect and social recognition (95%), reciprocated love (94%), high income and easy life (90%). The respondents were the least interested in scientific careers (23% rather not interested

and 17% definitely not interested), as shown in Fig. 14.

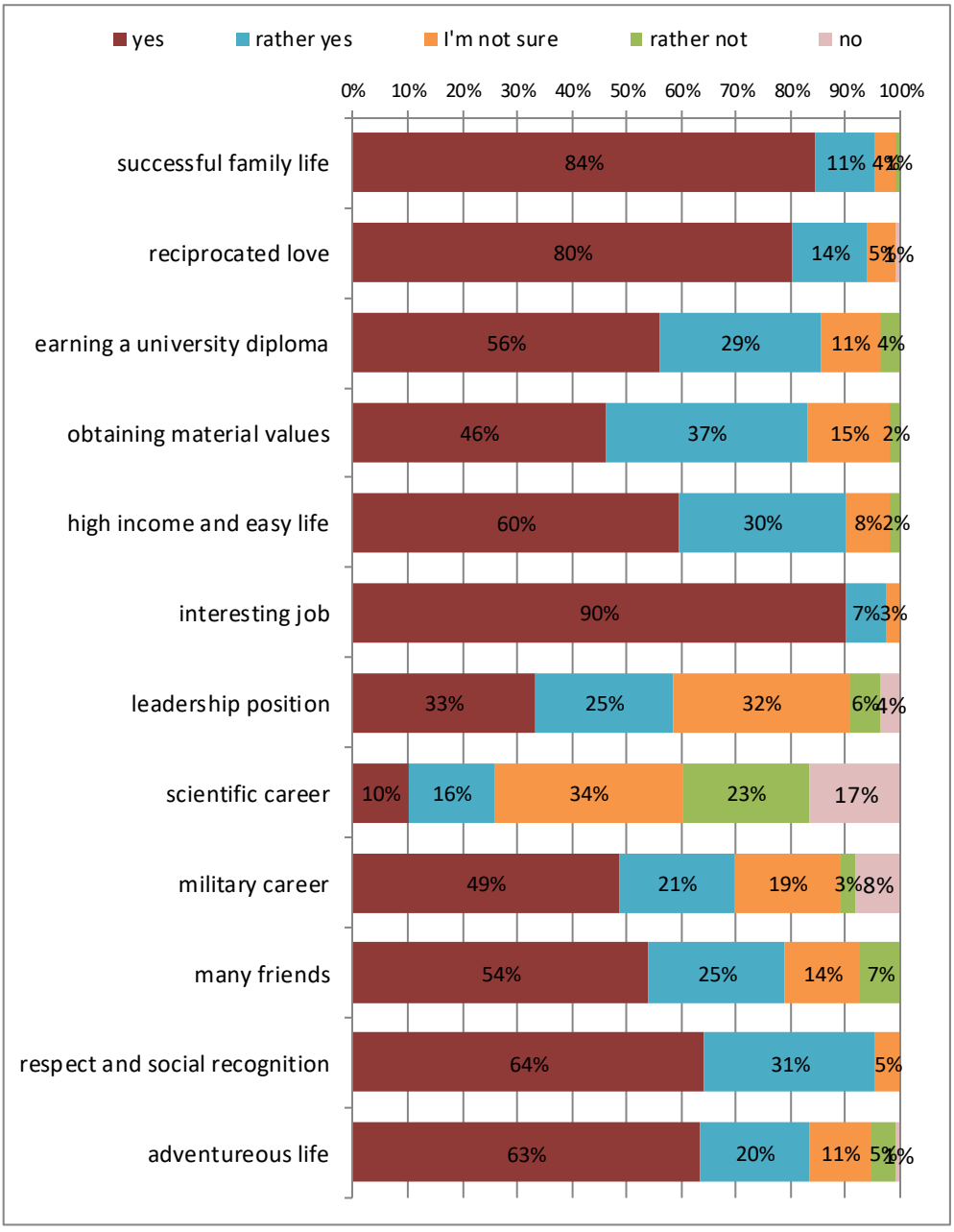


Fig. 14. Objectives of participating males
Source: prepared by the authors.

On the other hand, the participating women indicated that their main objectives were: successful family life (99%), interesting job (98%), reciprocated love (95%), and gaining respect and social recognition (90%). Like the participating males, the participating females were the least interested in scientific careers (22% rather not interested and 13% definitely not interested), as shown in Fig. 15.

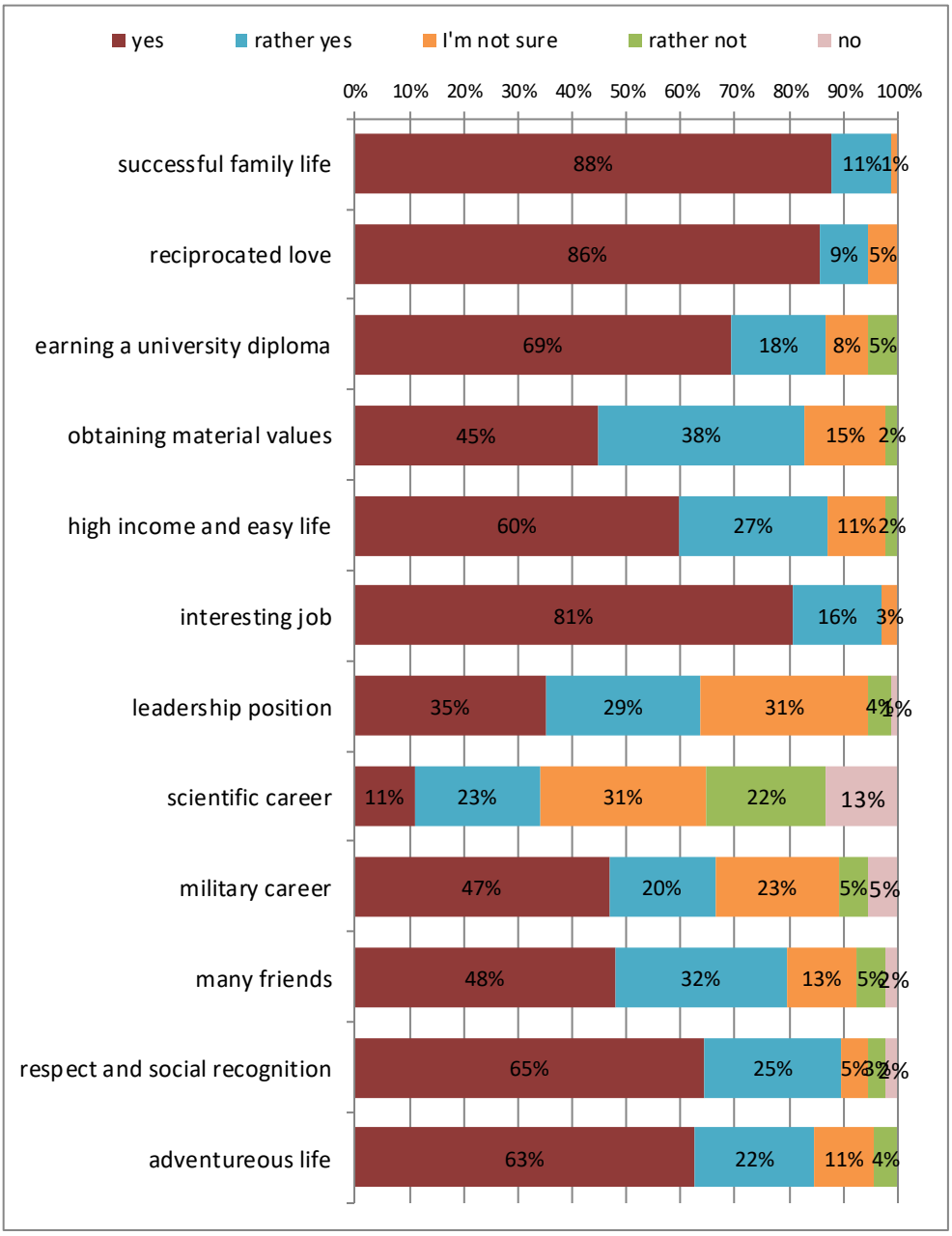


Fig. 15. Objectives of participating females
Source: prepared by the authors.

In conclusion, the objectives of students of military classes are: interesting job (98%), successful family life (97%), reciprocated love (94%), respect and social recognition (93%), high income and easy life (89%), and earning a university diploma (86%). More women than men indicated that a successful family life was more important to them than an interesting job; in the case of men, it was the opposite. The objectives of the participating students of military classes are shown in Fig. 16.

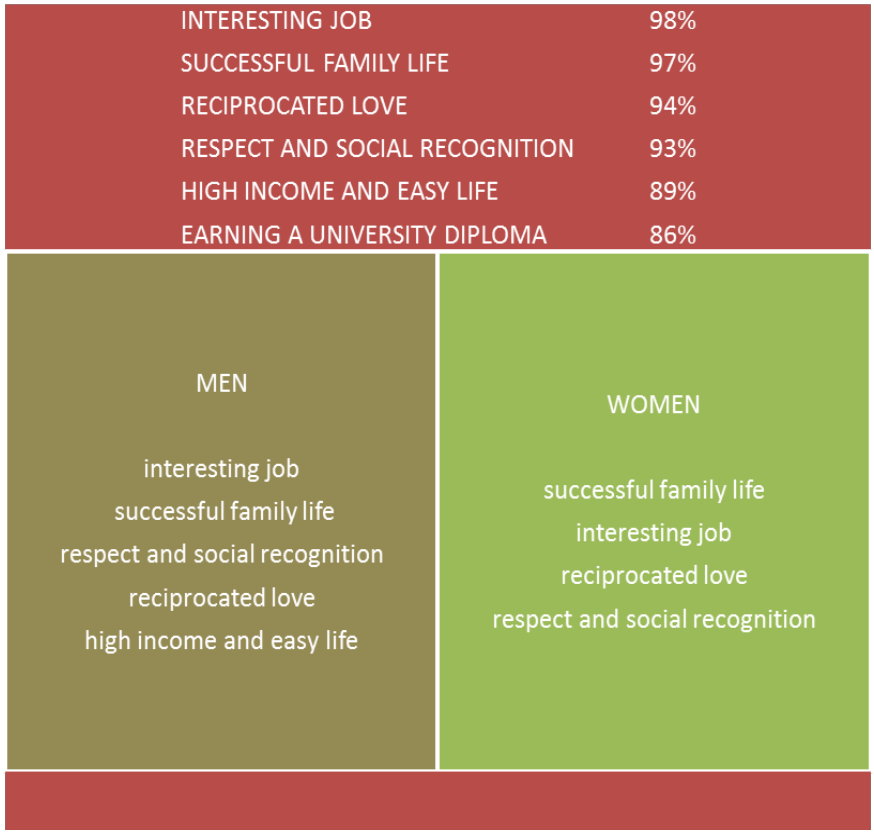


Fig. 16. The objectives of the participating students of military classes
Source: prepared by the authors.

6. CONCLUSION

Due to the high interest in military education among school-age young persons and the fact that values are important in human lives as they constitute a collection of valued objects or criteria for

decisions made in life, thus directing the activities of individuals, the object of the empirical study was the values shared by students of military classes. The main problem was defined in the following questions: What are the characteristics of the axiological aspects of the functioning of students of military classes? In connection with the main problem, three detailed questions were formulated:

1. What are the respondents interested in?
2. What are the directions of development of the personality traits of the respondents?
3. What are the characteristics of the respondents?

The analysis of the results made it possible to answer the research questions.

Re. 1. The key interests of the participating students of military classes: television, radio, and press (68%), art (57%), tinkering / DIY (57%), trade and business (56%), sexual experiences (55%), knowledge (51%), comfort and convenience (51%), the Internet (49%), food (48%), alcoholic beverage (48%). Moreover, the study demonstrated that women were significantly more often than men not interested in sexual experiences, even though in both groups one-third of the participants were highly interested in those categories. On the other hand, the significantly more men than women indicated a high and medium level of interest in comfort and convenience. It was also found that significantly more men than women were interested in art. Based on the analyses that were performed, it was also concluded that older respondents were more interested in the consumption of alcoholic beverages, sexual experiences, social life, and tinkering / DIY.

Re. 2. The key directions of development of personality traits among the participating students of military classes were: responsibility (55%), discipline and dutifulness (51%), strong will (50%), courage (40%), and courteousness (39%). Moreover, the views of women and men in this area are comparable to the general profile of the group. On the other hand, the plan of personal improvement varies depending on the age of the respondents. Students of the first grade mostly see a need to improve their strong will, courage, responsibility, diligence, discipline, and dutifulness. On the other hand, the personal traits that students of the second grade find the most important are responsibility, discipline and

dutifulness, while strong will, courteousness, diligence, and courage were less important to them.

Re. 3. The objectives of students of military classes are: interesting job (98%), successful family life (97%), reciprocated love (94%), respect and social recognition (93%), high income and easy life (89%), and earning a university diploma (86%). The study proved that a successful family life was more important than an interesting job, while in the case of men, it was the opposite. Students of the first and second grades wanted an interesting job while students of the third grade found it less important than a successful family life and reciprocated love. The smallest percentage of students expected to make scientific careers. In all the analysed groups, the distribution of the responses was comparable, and no significant correlations were found.

The study made it possible to achieve the objective of the study, namely to specify the characteristics of the axiological aspects of the functioning of students of military classes based on an analysis of the results of the author's own studies, with particular focus on the interests, dimensions of development of personality traits, and the objectives of the respondents. The theoretical objective of extending the theoretical knowledge about the values shared by students of military classes, as well as the practicalobjectiveof improvement, based on the results of the study, of the research tool of a questionnaire for studying the values shared by students of military classes, expressed by those students, were achieved.

A comparison of the results of the study to the results of other contemporary studies concerning the values shared by young person's leads to at least three conclusions. First, similar to the conclusions reached based on the study conducted in Poland in the 1990's by Halina Świda-Ziemba[8], it can be stated that the respondents had a positive attitude toward having an interesting job. Another value that is shared by both studied groups is a positive approach to deciding about one's own fate.

Secondly, the study conducted by Mirosław Szymański [9]in the last years of the 20th century

[8] Cf. H. Świda-Ziemba, *Wartości egzystencjalne młodzieży lat dziewięćdziesiątych* [Existential values shared by young people in the 1990's], Warsaw University, Warsaw 1999

[9] Cf. M. Szymański, *Młodzież wobec wartości. Próba diagnozy [Young people and values. An attempt at diagnosis],* IBE, Warsaw 2000.

indicates that allocentric and pro-social values (friendship, common experiences) were the most important to young persons, followed by hedonistic values (enjoying life) and values related to work, ending with education, power, and culture. The values that were the least important to young persons were material values, civic values, and family-related values. Of note is the fact that the students of military classes participating in the study declared a similar value system, with the exception of family-related value, which they evaluate much more highly.

Third, a comparison of the results obtained in this study with the results of the studies conducted in 2003 by Krystyna Ostrowska[10] shows some clear differences. The young person's participating in Ostrowska's study identified love and great feelings as their most important goal, followed by happiness and a sense that they live for their families, followed by the trust of other people and having friends who like and respect them and by knowledge and education. In Ostrowska's opinion, the clear importance of such values as love and happy family life is the result of the more and more intensive process that leads to extreme individualism, namely focus on values that benefit only the development of people as individuals.

Adolescence is a period when young people assign importance to certain things, activities, objectives, characteristics, and interests and express the intent to achieve them in adult lives. The values of young persons are significantly shaped by the persons with whom young person spend time and who are often identified by young people as their role models. In schools, which are among the main socialisation environments, in the didactic and education process, students of military classes are exposed to patriotic and pro-social values as well as pro-civic and pro-state attitudes. Moreover, those values are often instilled in them by soldiers, firemen, policemen, dedicated teachers, and trainers at shooting or martial arts courses; all of those persons are role models who teach young people to appreciate the values that young persons in other schools have no contact with. The study indicates that students in military classes share some of the values with their contemporaries in other, non-military, classes; however, some of their interests, directions of development of personality traits,

[10] Cf. K. Ostrowska, *In search of values*, Rubikon, Kraków 2004.

and research objectives should be promoted on higher levels of education, for example in military academies. The interest of the young ~~person's~~ people participating in the study in security and national defence, physical fitness, and military careers could, of course, be used for promotion of the development of civil society in different regions of Poland and also for strengthening the defence capacity of the country. However, the type and size of those actions require systemic measures, similar to the pedagogical experiment in military classes conducted in the years 1998-2002.

ENDNOTES

[1] More information about the pedagogical experiment related to military education in the years 1998-2002 can be found in: M. Kaliński, *Przysposobienie wojskowe młodzieży szkolnej* [Military training of school-age youth], Ministry of National Defense, Warsaw 2000.

[2] Journal of Laws no. 56, item 506.

[3] Journal of Laws no. 176, item 1051.

[4] More information on the objectives and curricula in military classes can be found in: L. Kanarski, M. Koter, K. Loranty, I. Urych, *Wstępna diagnoza funkcjonowania klas mundurowych – wyniki badań pilotażowych* [Preliminary diagnosis of functioning of uniformed classes - results of pilot studies], in: *Klasy mundurowe. Od teorii do dobrych praktyk* [Uniformed classes. From theory to good practices], A. Skrabacz, I. Urych, L. Kanarski (red.), Warsaw 2016, pp. 71-82.

[5] In the present article, the term "value" is equivalent to the term "good." The author also defines values as objectives and stimuli that cause people to take certain actions in their lives and to find the sense of living.

[6] This assumption was made on the basis of an analysis of the earlier results of studies on the topic of education in military classes. Cf. e.g. L. Kanarski, M. Koter K. Loranty, I. Urych, *Klasy mundurowe. Wstępna diagnoza innowacji pedagogicznej* [Uniformed classes. Preliminary diagnosis of pedagogical innovation], in: S. Olearczyk, Z. Piątek (eds.), Obronność w edukacji dla bezpieczeństwa [Defense in education for security], Warsaw 2014, pp. 76-90; I. Urych, *Klasy wojskowe – geneza i rozwój* [Military classes - origins and development], in: B.M. Szulc, K. Krakowski (eds.), Dylematy współczesnej dydaktyki

obronnej [Dilemmas of contemporary defense teaching], Warsaw 2015, pp. 53-60.
[7] T. Pilch, T. Bauman, *Zasady badań pedagogicznych. Strategie ilościowe i jakościowe* [Principles of pedagogical research. Qualitative and quantitative strategies], Warsaw 2001, pp. 79-82.
[8] Cf. H. Świda-Ziemba, *Wartości egzystencjalne młodzieży lat dziewięćdziesiątych* [Existential values shared by young people in the 1990's], Warsaw University, Warsaw 1999
[9] Cf. M. Szymański, *Młodzież wobec wartości. Próba diagnozy [Young people and values. An attempt at diagnosis],* IBE, Warsaw 2000.
[10] Cf. K. Ostrowska, *In search of values*, Rubikon, Kraków 2004.

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[9] Urych I., *Student's opinion on the academic curriculum in military classes*, "Security and Defence Quarterly", 5(18) 2018.

STUDY OF WATER JET PROPULSION SYSTEM DESIGN FOR FAST PATROL BOAT (FPB-60)

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FPB-60 is a type of patrol boat built by shipyard in Indonesia to strengthen the needs of water territorial. However, the 20 years age caused a decrease in performance of the vessel. The method used was the harvard guldammer method to calculate water jet system parameters at a maximum velocity of 35 knots such as inlet diameter and nossel diameter, pump power, pump type used and other parameters to obtain Overall Propulsive Coefficient at that speed. In the calculation of water jet propulsion system design, the amount of capacity generated water jet pump system obtained was 4.15 m^3 / s with flow velocity on the nozzle/jet of 28.8 m/s. Based on the value of specific swabs of suction (Nss) of 6205.49, the pump for the water jet propulsion system had considered fulfilled the cavitation limit requirement so that it could be used for (FPB-60).

Keywords: *Vessel Resistance, Water Jet, Power, FPB.*

1. INTRODUCTION

FPB-60 is a type of patrol boat built by a shipyard in Indonesia to strengthen the needs of water territorial. However, the 20 years age cause a decrease in performance of the vessel. Based on these demands, it is necessary to have a ship that has good, safe acceleration and maneuverability, and has a low boat load so that it can be operated in deep or shallow waters (Susanto.et.al. 2017).

With the use of a water jet propulsion system, the vessel can be cultivated to have a smaller load compared to ships that use propellers so that with an increase in thrust generated by the engine it will be able to produce higher vessel speed (Herdzik 2013).

This paper have many supporting its research, for example paper with title An Approximate Method For Calculation of Mean Statistical Value of Ship Service Speed on a Given Shipping Line, Useful in Preliminary Design Stage (Żelazny 2015), Experimental Investigation on Stern-Boat Deployment System and Operability For Korean Coast Guard Ship (Chun.et.al. 2013),

Performance of VLCC Ship with Podded Propulsion System and Rudder (Amin 2014). Introduction to Naval Architecture (Tupper 1975). Basic Ship Theory (Tupper 2001). Practical Ship Design (Watson 1998). Ship Resistance and Propulsion : Practical Estimation of Ship Propulsive Power (Anthony F. Molland 2011). Practical Ship Hydrodynamics (Bertram 2000). Effect of Fluid Density on Ship Hull Resistance and Powering (Samson 2015). Ship Design and Construction (D'arcalengelo 1969). Resistance Propulsion and Steering of Ship (WPA Van Lamerren 1984). Predictive Analysis of Bare-Hull Resistance of a 25,000 Dwt Tanker Vessel (Adumene 2015). Resistance and Propulsion of Ships (Harvald 1992). Hydrodynamic of Ship Propellers (Andersen 1994). Ship Design for Efficiency and Economy (Bertram 1998). Design of Propulsion Systems for High-Speed Craft (Bartee 1975). A method of Calculation of Ship Resistance on Calm Water Useful at Preliminary Stages of Ship Design (Zelazny 2014). Increase of Ship Fuel Consumption Due to the Added Resistance in Waves (Degiuli.et.al. 2017). An Investigation Into The Resistance Components of Converting a Traditional Monohull Fishing Vessel Into Catamaran Form (Samuel 2015). Simulation of a Free Surface Flow over a Container Vessel Using CFD (Atreyapurapu.et.al 2014). Empirical Prediction of Resistance of Fishing Vessels (Kleppesto 2015). Designing Constraints in Evaluation of Ship Propulsion Power (Charchalis 2013). Coefficients of Propeller-hull Interaction in Propulsion System of Inland Waterway Vessels with Stern Tunnels (Tabaczek 2014). Cost optimization of marine fuels consumption as important factor of control ship's sulfur and nitrogen oxides emissions (Kowalski 2013). Numerical Investigation of the Influence of Water Depth on Ship Resistance (Premchand 2015). The Wageningen Propeller Series (Kuiper 1992). Principles of Naval Architecture Second Revision (Lewis 1988). Marine Propulsion (Sladky 1976).

In this paper, we used Harvard guldammer method to calculate water jet system parameters at maximum velocity of 35 knots such as inlet diameter and nossel diameter, pump power, pump type used and other parameters to obtain the Overall Propulsive Coefficient at that speed (Kim 1966). With this paper, it was expected that the water jet propulsion system could be used as an alternative for patrol boats to be built and operated in accordance with their duties.

This Paper is organized as follows. Section 2 is the review about basic ship theory. Section 3 were description of results and research discussion. Finally, the conclusion of this paper is presented in section 4.

2. RESEARCH METHODOLOGY

2.1. Propulsion System of The Ship

The ship propulsion system, is the exact matching between prime mover (diesel engine, gas turbine, steam turbine) and propeller from ship. Matching completion is not only seen from the engine or propeller point of view, but both are an integrated problem (Etter 1975).

Nomenclature

After Perpendicular (AP)
Fore Perpendicular (FP)
Length between perpendicular (Lpp)
Length on the water line (Lwl)
Length Overall (Loa)
Breadth molded (B/Bmld)
Draft/draught (T)
Dept (H)
Freeboard (F)
Centre line (CL)
Speed of The Ship (Vs)
Ship Resistance (R)
Effective Horse Power (EHP)
Thrust Horse Power (THP)
Delivery Horse Power (DHP)
Shaft Horse Power (SHP)
Brake Horse Power (BHP)

2.2. Water Jet Propulsion on Fast Patrol Boat

The ship with water jet propulsion is a ship which used water jet system as the propeller in its operation in the water media so that the ship can move in accordance with the speed of the desired ship. Ships that use water jet propulsion system is a system consisting of bare hull system and water jet system (Etter 1975).

The water jet propulsion system is widely used primarily for high-speed vessels, because based on studies that have been conducted, it was showed that the water jet propulsion system has a feature that has nothing to do with its propulsive efficiency. Some of the features that the water jet propulsion system possesses are described below:

1. The absence of propellers and steering outside the vessel is very advantageous because it reduces the total resistance occurring on the vessel and allows the operation of vessels for shallow waters.
2. Have good acceleration ability.
3. Have good ship motion when the vessel speed is relatively low.
4. Have the advantage when the ship is in movement at a relatively high speed.

5. Placement of impeller inside ship body will be able to reduce vibration and noise level on ship.
6. At a relatively high velocity of the vessel, propulsive efficiency can be maintained high enough to be comparable to the propeller propulsion system.

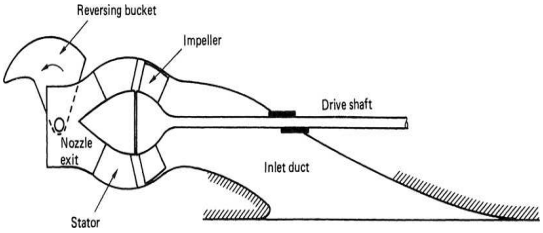

Fig. 1 Water jet System Configuration

2.3. Cavitation Requirements

The evaporation of these liquids can occur inside the pump or channel due to high flow velocity (turbulent flow) which can cause the pumped fluid temperature to be higher. At the pump, the cavitation problem often occurs on the suction side when the pump suction pressure is too low or under it saturation pressure (Barrass 2004).

2.4. Method of Research.

The planning of the water jet propulsion system is based on the following matters

a. The ship data used was Fast Patrol Boats (FPB-60) to be built

b. Calculation of required power and total resistance used Harvarld Guldhamer method.

c. The planning of the water jet propulsion system started by taking the Overall Propulsive Coefficient (OPCo) as a first step to calculate the parameters of the water jet propulsion system until the OPC was obtained in accordance with the predefined OPCo. Thereafter, calculations of the cavitation requirements of the channel system and the propulsion pump were used.

3. RESULT AND DISCUSSION

3.1 Vessel Data

The data from Fast Patrol Boats (FPB-60) to be used as calculations in the planning of water jet propulsion system were as follows:

a. LOA :60 m
b. LWL
: 55 m
c. Breadth (B)
: 8,10 m
d. Draft (T)
: 2,46 m
e. Height (H_2)
: 4,86 m
f. Block Coefficient (Cb) : 0,350

g. Velocity (Vs)
: 35 knot

3.2. Resistance Calculation

The magnitude of the resistance on the ship at the planned vessel velocity of 35 knots or 17.99m / s was:

a. Frictional Resistance : 82, 463 KN
b. Residual Resistance : 1,16 KN
c. Wind Resistance :3,686 KN
d. Additional Resistance :12,22 KN

So the total resistance that occurs on the ship was 99.53 KN.

3.3. EHP, BHP and SHP Calculation

Based on the total resistance, the amount of effective thrust required to be able to move the ship in accordance with the planned speed could be calculated as follows:

EHP =RT x Vs
=99,53 x 17,99
=1790,55 KW

This plan was assumed to be in an ideal state so that the amount of thrust required was equal to the amount of total resistance that occurred. The water jet propulsion system was planned to use two pumps of propulsion so that the amount of thrust per pump was 49,765 KN. By taking the initial OPC price of 0.57, the amount of BHP could be calculated as follows:

$$BHP = \left(\frac{T_h}{z}\right) \times \frac{Vs}{OPC}$$

$$= 49{,}765 \times \frac{17{,}99}{0{,}57}$$

=1570,65 KW

In this water jet system,it was planned that the pump impeller would be driven by a motor with direct clutch transmission, with transmission efficiency between 0.96 - 0.99 per pump. In this planning, the value was 0.96 so the amount of SHP could be calculated as follows:

SHP $=\eta_T$ x BHP
=0,96 x 1570,65
=1507,82 KW

3.4. Discussion

3.4.1. Dimension and Water Jet System Parameter Calculation

As shown in the figure below, based on the amount of thrust per SHP in the unit (lbf / HP), the amount of power density (SHP / Di^2) in units (HP / cm^2) could be known.

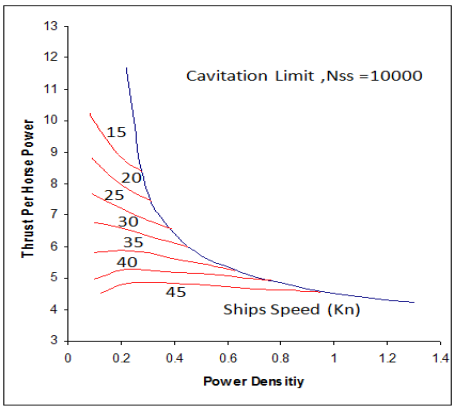

Fig. 2 Chart of Water jet System Inlet Dimension

The amount of thrust per SHP was 5.48 so based on the picture above, the amount of power density at 0.475 was obtained.

From power density, the main dimensions of water jet system could be calculated as follows:

- Inlet Diameter : 0,6682 m
- Inlet Area : 0,350 m2
- Nozzel diameter : 0,430 m
- Nozzel Area : 0,145 m2

By taking the fraction of the current flow value of 0.05, we could get the inlet speed as follows:

Vi = (1 – w) x Vs

= (1 – 0,05) x 17,99

= 17, 09 m/s

So the amount of speed on the outlet or nozzle (Vj) could be obtained by:

$$Vj = 0{,}5\times\left(Vi+\sqrt{\left(Vi^2+\frac{4.T}{\rho.An}\right)}\right)$$

$$= 0{,}5\times\left(17{,}09+\sqrt{\left(17{,}09^2+\frac{4\times 49765}{1024{,}63\times 0{,}144}\right)}\right)$$

$$= 28.8\ \frac{m}{s}$$

The amount of flow capacity in the jet / nozzle:

Q_J = Vj x An

= 28,8 x 0,145

= 4,15 m^3/s

The comparison of ship speed and flow velocity through the jet could be expressed by:

$$\mu = \frac{Vj}{Vs} = \frac{28{,}8}{17{,}99} = 0{,}625$$

The amount of ideal jet efficiency (ηj_{ideal}) :

$$\eta_j = \frac{2.\mu}{1+\mu} = \frac{2\times 0{,}625}{1+0{,}625} = 0{,}769$$

For the planning of the water jet propulsion system, it was recommended that the value of inlet loss coefficient (ψ) was set between 16% - 20%. In this calculation, the value of inlet loss was 18%, because the water jet system used a

flush inlet type and the vessel operated in a relatively clean area of water.

Meanwhile, the value of loss coefficient (ζ) was recommended between 1% - 4%. In the calculations for actual jet efficiency, a value of 2% was chosen because the losses on the nozzle were relatively smaller compared to their inlet channels. So, the actual (ηj_{aktual}) jet efficiency cost for the water jet system could be obtained by:

$$\eta j_{aktual} = \frac{1}{1-w} \times \frac{2.\mu.(1-\mu)}{(1+\psi)-(1-\zeta).\mu^2 + \frac{2.g.hj}{Vj^2}}$$

$$= \frac{1}{1-0,05} \times \frac{2 \times 0,769 \times (1-0,769)}{(1+0,02)-(1-0,18) \times 0,769^2 + \frac{2 \times 9,8 \times 0,881}{28,8^2}}$$

$$= 0,675$$

In the calculation of the overall propulsion efficiency (OPC), it was assumed that the pump efficiency was 0.89 and the relative rotative efficiency was 0.98. So, the overall propulsion efficiency (OPC) could be obtained by:

OPC = ηj_{aktual} x η_P x η_r x η_T

= 0,675 x 0,89 x 0,98 x 0,96

= 0,573 ≈ 0,57

Based on the calculation of Overall Propulsive Coefficient (OPC), an equal value to the previous forecast was obtained so that the calculation could be continued.

3.4.2 Calculation of Pump Characteristic:

a. Pump Rotation

N = K x $SHP^{(1/3)}$

= 69 x $2020,45^{(1/3)}$

= 873,66 ≈ 874 Rpm

b. Specific Rotation

The flow capacity (Qj) obtained from the previous calculation was 4.15 (m3 / s) = 146.44 (ft3 / s) converted into gallon units per minute (GPM) to be obtained at 65731.06 GPM. The amount of price for pump Head could be calculated as follows:

$$H = \frac{V_j^2}{2g} - \frac{V_i^2}{2g} + h_{LT}$$

$$= \frac{28,8^2}{(2 \times 9,8)} - \frac{17,09^2}{(2 \times 9,8)} + 5,828$$

= 33,25 m = 109,06 ft

So the value of pump specific rotation could be calculated as follows:

$$Ns = N \times \frac{\sqrt{Q_j}}{H^{0,75}}$$

$$= \frac{874 \times \sqrt{65731,06}}{109,06^{0,75}}$$

$$= 6639,69$$

Based on the specific rotation value of the pumps obtained above, the type of pump to be used that corresponds to the specific value of the round was the type of mixed flow pump with a specific rotation between 4000 <Ns <10000

c. Suction Specific Rotation

The value of NPSH could be calculated as follows:

$$NPSH = \frac{\eta_{j.ideal} \times Vj^2}{2g} - hj$$

$$= \frac{0,769 \times 28,8^2}{2 \times 9,8} - 0,881$$

$$= 31,66 \text{ m} = 103,84 \text{ ft}$$

Specific rotation value of suction could be calculated as follows:

$$Nss = \frac{N\sqrt{Q_j}}{NPSH^{0,75}}$$

$$= \frac{874 \times \sqrt{65731,06}}{103,84^{0,75}}$$

$$= 6888,48$$

Based on the image of the Operation Zone of the Mixed Flow Pump below, the planned operating zone of the water jet pump system was located in zone I or continuous operation zone, which was separated by zone II by Nss = 12000 line as the cavitation boundary.

This means that the pump for the planned water jet system met the allowable cavitation requirements so it was safe to use continuously.

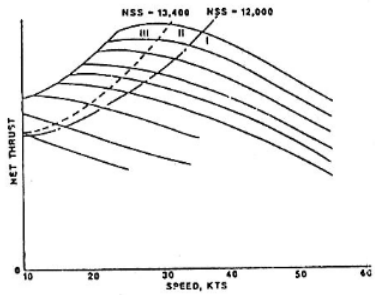

Fig. 3 Mix Flowed Pump Operation Zone

4. CONCLUSION

Based on the calculations, it required propulsion pump drive with power of 1571 KW and round 874 RPM per pump to obtain the maximum planned speed. Based on the result of specific rotation of 6639,69 then the type of pump used in accordance with the specific rotation size is Mixed Flow Pump (4000 <Ns <10000). The thrust force generated by the water jet propulsion system was highly dependent on the amount of flow capacity generated by the pump used. The larger the capacity produced by the pump with a constant nozzle diameter, the nozzle flow rate will also be greater so that

the resulting thrust would also be greater. In the planning of water jet propulsion system is obtained the amount of capacity generated water jet pump system is 4.15 m3 / s with flow velocity on the nozzle / jet of 28.8 m / s. From the value of specific swabs of suction (Nss) obtained that is equal to 6205.49 then the pump for the water jet propulsion system has fulfilled the cavitation limit requirements so that it can be used continuously (continuous).

In this water jet propulsion system plan, the amount of capacity generated by water jet pump system was obtained at 4.15 m^3/s with flow velocity on the nozzle / jet of 28.8 m/s. Based on the value of specific rotation of suction (Nss) obtained at 6205.49, it could be concluded that the pump for the water jet propulsion system had fulfilled the cavitation limit requirements so that it could be used continuously.

5. ACKNOWLEDGEMENT

This research has been supported by Indonesia Naval Technology College (STTAL).

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MARITIME STRATEGY DEVELOPMENT TO ENCOUNTER THE THREAT OF NATIONAL SEA SECURITY IN INDONESIA TERRITORY

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As a country with the largest sea area in Asia, Indonesia will certainly encounter the threats to the maritime aspect. The aim of this paper is to make an analysis of national maritime security ~~of~~ concerning the regional development effect. This paper uses a SWOT approach (Strengths, Weaknesses, Opportunities, and Threats), Fuzzy Multi-criteria Decision Making (FMCDM), and Borda method. SWOT analysis is used to identify internal and external factors in national maritime security, and strategic determination. Fuzzy MCDM (FMCDM) method is used to select the right strategy in maritime security control. The Borda method is used to define the sub-strategy, priorities of the selected strategy. The result of this paper with SWOT analysis is to identify four strategies, likely Strategy 1 (SO); Strategy 2 (WO); strategy 3 (WT); Strategy 4 (ST). Based on FMCDM method, Strategy 1 (SO) has a weight of 0.256 as a third rank; Strategy 2 (WO) has a weight of 0.26 as a second rank; Strategy 3 (WT) has a weight of 0.208 as a fourth rank; Strategy 4 (ST) has a weight of 0.276 as a first rank. Then, the strategy chosen is Strategy 4 (ST). Based on Borda method, the first priority of sub-strategy from strategy 4 (ST) is to increase the percentage of State Budget for the maritime sector in the development of Navy Capability and other stakeholder to carry out the operation of sea crime action with allocation of 22,587%.

Keywords: *Maritime Security, Indonesian Sea, SWOT Analysis, Fuzzy MCDM, Borda Method.*

1. INTRODUCTION

Nowadays, Asia Pacific is a region in the world that is predicted to be part of the world greatest history of politics and economics in the 21st century [1], it can be seen from the increasing number of New Emerging Countries (NEC). Asian economic revival is still led by two countries, namely China and India [2]. These countries have the largest human resources and the

biggest potential market in the world.

According to Global Trend 2030, the map of the countries in the world will change in 2030 [3]. Asia will overtake North America and Europe in terms of global power, primarily based on the Gross Domestics Product (GDP), population number, military allocation, and investment in technology [4]. In these projections, Indonesia is predicted as one of the countries that will have an increase of emerging power in 2030 [5].

The economic development of Indonesia and regional areas gives an effect on national security, including maritime security sectors. As one of the ASEAN countries, Indonesia makes for the territorial waters an important role in the connectivity mode for Asia Pacific [6]. With its position as a trade and maritime transportation routes [7], Indonesia has challenges to manage maritime security with various dimensions including defense and security perspective. Indonesia will certainly encounter the threats to the maritime aspect. The threat must be well identified to determine of maritime security strategy.

The aim of this paper is ~~giving~~ to make an analysis of national maritime security to encounter of regional development effect. This paper uses a SWOT approach (Strengths, Weaknesses, Opportunities, and Threats), Fuzzy Multi-criteria Decision Making (FMCDM), and Borda method. SWOT analysis is used to identify internal and external factors in national maritime security, and strategic determination. Fuzzy MCDM (FMCDM) method is used to select the right strategy in maritime security control. The Borda method is used to define the sub strategy from the priorities of the selected strategy.

The inscriptive benefit of this paper is a literature for Indonesia maritime actors about maritime security strategy. It provides academic studies for maritime security.

To support the research, this paper has many ~~literatures~~ sources, such as literature about maritime security, Chapsos and Malcolm (2017) explains about analysis of the training needs of the key player of Indonesia maritime security, which consider how the ability of maritime security in Indonesia can be improved [8]. Zhang (2014) presents ~~about~~ some obstacles in maritime risk studies and how to overcome uncertainty of maritime transportation [9]. Klimov (2015) explains ~~about~~ the definition of hazard and threat in maritime

areas [10]. Bateman (2010) presents the threat effect of Asia Pacific toward maritime security in South East Asia [11]. Matthews (2016) presents ~~about~~ Indonesia's response in rejecting and accepting multilateral cooperation in the Malacca Strait to establish maritime security stability [12]. Ramadhani (2015) presents the enhancement of a cooperation for all actors in the maritime sector, to reduce the likelihood of increasingly deteriorating power competition [13]. Lin and Gertner (2015) present that the maritime territory gives unique risks with different solutions on the projection of state and land-based ??? [14].

Paper literature about the method, such as Buyukozkan and Guleryuz (2016) presents ~~about~~ the Fuzzy MCDM uses to select alternative energy with the criteria of quantitative and qualitative analysis [15]. Toklu (2017) explains ~~about~~ how the Fuzzy MCDM is used to determine the level of customer loyalty [16]. Suharyo, et al (2017) presents ~~about~~ the Fuzzy MCDM to select the naval base location with ~~factor of~~ political, economic, and technical factors [17]. Lumaksono (2014) presents ~~about~~ SWOT analysis uses to obtain the weight value from the expert in identifying the internal and external factors of traditional shipbuilding industry [18]. Malik, et al (2013) explain about SWOT analysis uses to determine the external and internal factors to support ~~of~~ the strategy formulation in business schools in the Kingdom of Saudi Arabia [19]. Shahbandarzadeh and Haghighat (2010) present the integration results of each level and provide a final assessment of the market selection strategy [20]. Junior, et al (2014) present the method to give a rank of countries in calculating the number of gold medals, silver medals and bronze medals won [21].

The paper is organized as follows. Section 2 reviews the basic concept of method and maritime security. Section 3 gives the result and discussion of the research. Section 4 describes the conclusion of maritime security strategies in Indonesia.

2. MATERIAL / METHODOLOGY

2.1. Indonesia Maritime Security

Indonesia is the largest archipelagic country in the world with a coastline of about 81,000 km [22]. Indonesia has more than 17,000 islands and its marine [23] area covers 5.8 million km² or

about 80% of the total area of Indonesia [24]. Maritime security is influenced by the actions and patterns of interaction between the actors involved. The concept of maritime security lies between two ideas: 1) groups using a traditional security framework, 2) groups using non-traditional framework [25].

According to Buerger (2015), there are three fields to identifying the concept of maritime security, such as: 1) Maritime security matrix, 2) "securitization" framework, which provides a means to understand how different threats are included in maritime security, 3) the theory of security practices with the purpose to understand what actions are carried out in the dimensions of maritime security [26].

The national security dimension relies on a traditional perspective that views national security as an effort to protect the state's sustainability. Therefore, the sea power is represented by naval force as a dominant force in the maritime. Thus, maritime security is identical with the use of naval power [27]. There are several threats to maritime security, such as; 1) threats of violence (piracy, sabotage, and vital objects of terror); 2) navigation threats; 3) the threat of resources, such as damage and pollution of the sea and its ecosystem; 4) the threat of sovereignty [28].

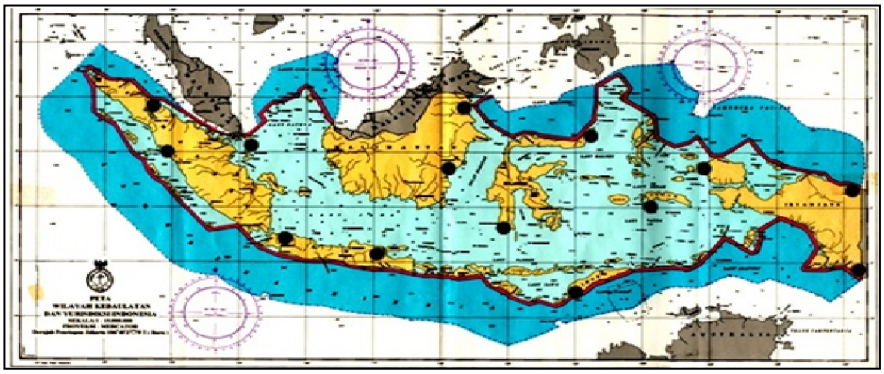

Figure 1. Map of Indonesia

There are also several actors involved in maritime security, such as [29] 1) Coordinating Ministry of Maritime Affairs; 2) Coordinating Ministry of Politics, Law, and Security; 3) Indonesian Maritime Security Agency (BAKAMLA); 4) Navy (TNI AL); 5) Indonesian National Police; 6) Dir. Gen. Sea Transportation (Hubla); 7) Dir. Gen. Custom and Excise (Bea and Cukai); 8) Dir. Gen. of Immigration (Ditjenim); 9) Ministry of Marine and Fisheries (KKP); 10) Indonesia Sea and Rescue Agency (BASARNAS).

In the management of national maritime security, stakeholders are required to apply the strategy appropriately. In this case, there are several related strategic criteria, such as:

a. Effective communication among stakeholders.
b. The Strategy has good information about security and intelligence.
c. There is continuous assessment of existing security processes, procedures and technologies.
d. Strategy is supported by the ability and adequate ~~the~~ number of personnel~~.~~
e. The Strategy supported by policies and funding from the Government.
f. There is a good and effective interaction within the organization or between organizations.
g. There is consistency in the application of systems, processes and protocols.
h. Maritime security strategy shall synergize with risk management, quality, environment and other safety systems.
i. There are metric measurements, accurate monitoring and reporting procedures.
j. There is regular and ongoing training.
k. There is an adequate control center.

2.2. SWOT Analysis.

SWOT analysis is an effective strategic planning tool for analyzing the organization of internal and external influences 29]. SWOT analysis consists of internal and external factors. Internal factors (strengths, weaknesses) are used to test assets within an organization. External factors are used (opportunities, threats) to investigate factors in the environment beyond the organizational control that affect organizational performance [30] [31]. Information obtained can be integrated in different matrix combinations of the four factors in

determining strategies for long-term progress [32].

The SWOT analysis shows the right strategy in four categories (SO, ST, WO and WT) [18]. Strength-Opportunity (SO), this strategy takes advantage of opportunities by using existing strengths. Strength-Threat (ST)- this strategy uses the strength to eliminate or reduce the effects of threats. Weakness-Opportunity (WO) strategies are used to take benefit from opportunities by external environmental factors with fixing the weaknesses. Last, Weakness-Threat (WT) strategies are used to reduce an impact from threat with fixing the weakness [32].

Table 1. Matrix SWOT

INTERNAL/EXTERNAL FAKTOR	STRENGTH (S) (Maximal)	WEAKNESS (W) (Minimal)
OPPORTUNITIES (O) (maximal)	S-O Strategy (Maximal-Maximal)	W-T Strategy (Minimal-Minimal)
THREATS (T) (Minimal)	S-T Strategy (Maximal-Minimal)	W-O Strategy (Minimal-Maximal)

2.3. Fuzzy MCDM.

Zadeh (1965) promoted the fuzzy set theory concept [33]. This concept is defined mathematically by specifying the value of each individual representing the membership class in the fuzzy set [34]. Consequently, fuzzy theory has become a useful tool for automating human activity with information-based on uncertainty. This value represents the rate in which the individual is similar or compatible with the concept shown by the fuzzy set. Thus, an individual can enter in fuzzy formation to a bigger or lesser extent. This membership value is indicated by real numbers with ranges from closed intervals between 0 and 1. Therefore, the fuzzy set introduces obscurity (with the aim of reducing complexity) by eliminating the boundary that separates class members from non-members gradually.

Linear Representation

In a linear representation, the mapping to membership level is described as a straight line. This form is the simplest and most appropriate choice for a less obvious approach. There are 2 (two) fuzzy sets derived from linear conditions, the first is the set increment starting from the domain value with the zero membership level [0] to move right into the domain value with the higher membership level 17].

Membership functions:

$$\mu[x] = \begin{cases} 0; & x \leq a \\ (x-a)/(b-a); & a \leq x \leq b \\ 1; & x \geq b \end{cases} \quad (1)$$

Second, this condition is the opposite of the first. The straight line starts from the domain value with the highest membership level on the left side, then switches to the value of the domain that has a lower membership [35].

Membership functions:

$$\mu[x] = \begin{cases} (b-x)/(b-a); & a \leq x \leq b \\ 0; & x \geq b \end{cases} \quad (2)$$

Triangular Fuzzy Number (TFN)

In TFN, every single value has a member function that consists of three values. Each value represents the lower, middle and top values.

A = (a1, a2, a3)
TFN membership functions for the image above is as follows:

$$\mu[x] = \begin{cases} 0 & \text{for } x < a_1 \\ \frac{x-a_1}{a_2-a_1} & \text{for } a_1 < x < a_2 \\ \frac{a_3-x}{a_3-a_2} & \text{for } a_2 < x < a_3 \end{cases} \quad (3)$$

Linguistic Variables

The linguistic variable is a variable that has a description of a fuzzy number and is generally represented by a fuzzy set [35]. In this study, a fuzzy triangle number has been used to represent linguistic variables on a scale of 0 to 1 to assess criteria and alternatives. These linguistic variables are represented as very weak (VW), weak (W), medium (M), strong (S), very strong (VS).

Liang (1999) proposes a fuzzy Multi Criteria Decision Making (MCDM) based on ideal and anti-ideal concepts [36]. In this section, it describes the MCDM fuzzy approach introduced by Dursun and Karsak which based on fuzzy information integration and 2-tuple linguistic representation model [37]. The settlement procedure used is stated as follows:

Step 1. This step shows the weighted results from a qualitative criterion level assessment to obtain aggregate weighting values

Step 2. This step shows the result of the preference rating for each alternative based on the existing qualitative criteria

Step 3. This stage determines the middle value of the fuzzy number. This step sums the value at each level of the linguistic scale and divides the sum with the number of criteria. Mathematical notation is as follows:

$$a_t = \frac{\sum_{i=1}^{k} \sum_j T_{ij}}{\sum_{i=1}^{k} n_{ij}} \quad (4)$$

a_t = median fuzzy numbers to levels
T= the level of assessment is very weak, weak, moderate, strong and very strong.
n= amount of scale linguistic scale factor for an alternative to T-1 of the i-th factor
T_{ij} = numerical value of the scale for an alternative to linguistic T-1 of the j-th factor.

Step 4. This step determines the lower and upper limit values of the fuzzy numbers, where the lower bound value (ct = b (i - 1)) equals the average rate down, while the upper bound value (bt = b (i - 1)) is equal to the above average level.

Step 5. This step determines the aggregate weight of each qualitative criterion. The form of linguistic assessment has a definition of fuzzy triangle number, then aggregation process is done by finding the aggregate value of the lower limit value of each (ct), mean (at) and upper limit value (bt). The equation is as follows:

$$c_t = \frac{\sum_{j=1}^{n} c_{tj}}{n} \qquad a_t = \frac{\sum_{j=1}^{n} a_{tj}}{n} \qquad b_t = \frac{\sum_{j=1}^{n} b_{tj}}{n} \quad (5)$$

c_{tj} = lower limit value of qualitative criteria to-t by decision makers to-j
a_{tj} = median qualitative criteria to-t by decision makers to-j
b_{tj} = the value of the upper limit to the qualitative criteria-t by decision makers to-j
n = number of assessors (decision makers)
Aggregate value is $N = (c_j, a_j, b_j)$ where:

Nt = Value aggregation weights for qualitative criteria to-t

Step 6. This stage calculates the preference value of each alternative based on qualitative criteria. When calculating the aggregate weight, each alternative for each criterion will show fuzzy aggregate values with the following models:

$$q_t = \frac{\sum_{j=1}^{n} q_{tj}}{n} \quad o_t = \frac{\sum_{j=1}^{n} o_{tj}}{n} \quad p_t = \frac{\sum_{j=1}^{n} p_{tj}}{n} \qquad (6)$$

q_{itj} = lower limit value alternative to qualitative criteria by the manufacturer to tj.
o_{it} = value alternative to middle qualitative criteria to-t by decision makers to j.
o_{itj} = upper limit value alternative to qualitative criteria by the manufacturer to tj.
N = number of assessors (decision makers).

Aggregate value is M_{itj} = (q_{it},o_{it},p_{it}), where:
M_{itj}= weighted aggregation value for the i-th alternative to qualitative criteria to-t.

Step 7. This step calculates the fuzzy index value of each alternative appraisal result for qualitative criteria denoted by Gi. First, we get the value of Mit and Nt, to get the fuzzy match index value for each subjective criteria Gi

$G_i = (Y_i, Q_i, Z_i, H_{i1}, T_{i1}, H_{i2}, U_{i1}), \qquad i = 1,2,.....m$

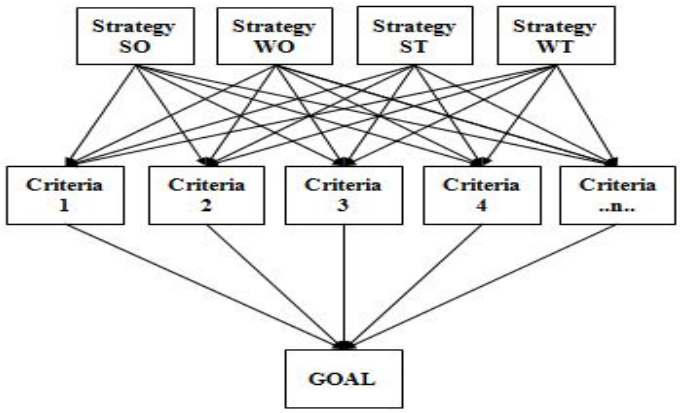

Figure 2. Fuzzy MCDM Diagram for Strategy

The fuzzy index values are obtained by operating each element of triangular fuzzy numbers from the numbers 2 and 4 with the following notations:

$$T_{i1} = \frac{\sum_{t=1}^{k}(o_{it-} q_{it})(a_{t-} c_t)}{k} \quad (7)$$

$$T_{i2} = \frac{\sum_{t=1}^{k}[q_{it}(a_{t-} c_t)+c_t(o_{it-} q_{it})}{k} \quad (8)$$

$$U_{i1} = \frac{\sum_{t=1}^{k}(p_{it-} o_{it})(b_{t-} a_t)}{k} \quad (9)$$

$$U_{i2} = \frac{\sum_{t=1}^{k}[b_t(o_{it-} p_{it})+p_t(a_{t-} b_t)}{k} \quad (10)$$

$$H_{i1} = \frac{T_{i2}}{2T_{i1}} \quad (11)$$

$$H_{i2} = -\frac{U_{i2}}{2U_{i1}} \quad (12)$$

$$Y_i = \frac{\sum_{t=1}^{k} q_{it}c_t}{k} \quad (13)$$

$$Q_i = \frac{\sum_{t=1}^{k} o_{it}a_t}{k} \quad (14)$$

$$Z_i = \frac{\sum_{t=1}^{k} p_{it}b_t}{k} \quad (15)$$

Step 8. This step calculates the value of the utility in each alternative to qualitative criteria.

$$U_t(G_t) = \frac{1}{2}\left[H_{i2} - \left(H_{i2}^2 + \frac{X_R - Z_i}{U_{i1}}\right)^{\frac{1}{2}} + 1 + H_{i1} - \left(H_{i1}^2 + \frac{X_L - Y_i}{T_{i1}}\right)^{\frac{1}{2}}\right] \quad (16)$$

$$X_R = \frac{1}{2}\left\{2x_1 + 2H_{i2}(x_2 - x_1) + \frac{(x_2 - x_1)^2}{U_{i1}} - (x_2 - x_1)\left[\left(2H_{i2} + \frac{(x_2 - x_1)^2}{U_{i1}} + 4\frac{x_1 - z_1}{U_{i1}}\right)\right]^{\frac{1}{2}}\right\} \quad (17)$$

$$X_L = \frac{1}{2}\left\{2x_2 + 2H_{i1}(x_2 - x_1) + \frac{(x_2 - x_1)^2}{T_{i1}} - (x_2 - x_1)\left[\left(2H_{i2} + \frac{(x_2 - x_1)^2}{T_{i1}} + 4\frac{x_1 - z_1}{T_{i1}}\right)\right]^{\frac{1}{2}}\right\} \quad (18)$$

The first step to do is to look for the criteria and preferences of defuzzification value alternative to the criteria, where the defuzzification method used is the centroid method. The formula of defuzzification criteria is as follows:

$$\text{Defuzzification } N_{it} = \left[\left[\int_{c_t}^{a_t} \frac{(x-c_t)}{(a_t-c_t)} x\,dx + \int_{a_t}^{b_t} \frac{(x-b_t)}{(a_t-b_t)} x\,dx\right]\right]$$

t = criteria 1,2,3.....n

While the formula for determining the value of defuzzification alternative preference for qualitative criteria is as follows:

$$\text{Defuzzification } M_{it} = \frac{\left[\left[\int_{q_{it}}^{o_{it}} \frac{(x-q_{it})}{(o_{it}-q_{it})} x\,dx + \int_{o_{it}}^{p_{it}} \frac{(x-p_{it})}{(a_t-p_{it})} x\,dx\right]\right]}{\left[\left[\int_{q_{it}}^{o_{it}} \frac{(x-q_{it})}{(o_{it}-q_{it})} dx + \int_{o_{it}}^{p_{it}} \frac{(x-p_{it})}{(a_t-p_{it})} dx\right]\right]} \quad (20)$$

i = alternative 1,2,3,.....m;
t = criteria 1,2,3.....n

Step 9. This step calculates the ranking value of each alternative based on qualitative criteria by using the following formula:

$$ST_i = \frac{U_T(G_i)}{\sum_{i=1}^{m} U_T(G_i)} \quad (21)$$

ST_i= the value of the i-th rank alternatives based on qualitative criteria.

Step 10. This step calculates the ranking value of each alternative based on quantitative criteria by the following formula:

$$OT_i = \frac{\sum_{j=1}^{p}[T_{ij}\,i(\sum_{i=1}^{m} T_{ij})]}{p} \quad (22)$$

T_{ij} = value (score) of the i-th alternative to quantitative criteria to-j
M = number of alternatives
P = number of quantitative criteria
OT_i= the value of the i-th rank alternatives based on quantitative criteria

Step 11.This step calculates the total ~~of~~ ranking value in each alternative to qualitative and quantitative criteria by the following formula:

$$FT_i = \frac{ST_i + OT_i}{\sum Vk}, 0 \le x \le 1 \quad (23)$$

ST_i = the value of thei-th rank alternatives based on qualitative criteria.
OT_i = the value of the i-th rank alternatives based on quantitative criteria
Σ Vk = number of variables
FT_i = rank total value for the alt to-i

Step 12. This step is selecting the best alternative based on the value of the highest rank.

2.4. Borda Method.

Borda Rules (Borda 1781) are included in the class of ranking rules in which points are awarded to each candidate or alternate according to rank in voter preferences [38]. Each decision maker must order an alternate option according to the preference specified. One point is given to the highest choice alternative; the second receiveds two points and so on.

In this method if there are n alternatives, the first choice of voters is given (m -1) points, the second point (m-2) and so on to the last option, which is 0 points. Then, in each alternative, summaries of all points are given from all decision makers (or by criteria). The alternative is to rank in the order corresponding to the number, the fewer points gained, the better the alternate in the rankings.

The formula describes as [21]:

$$P_a = \sum_{i=1}^{n} r_{a1} \qquad (24)$$

Where P_a is the total number of points obtained by alternative *a* and r_{ai} is the rank of alternative *a* in criterion *i* .

2.5. Flowchart.

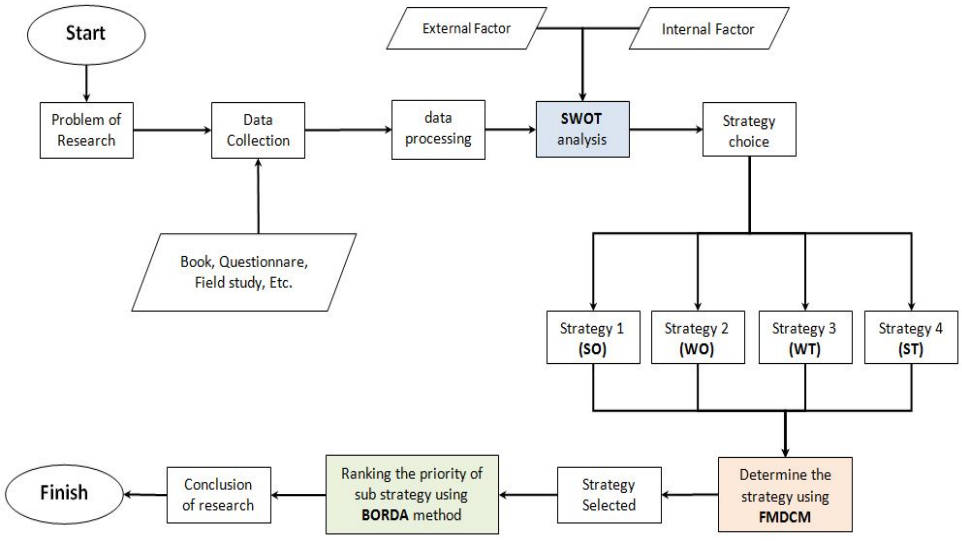

Figure 3. Flowchart of Research

3. RESULTS AND DISCUSSION

SWOT Analysis

This sub section describes the results of research conducted in order to develop maritime security strategy with the SWOT analysis approach. SWOT analysis is used to capture expert judgment on internal and external factors, and then the factors of strength, weakness, opportunity, and threat are found.

Based on the results of respondents' judgment, there are several internal factors that become strengths and weaknesses as contained in the table:

Table 2 . Internal Factors from SWOT Analysis

INTERNAL FACTOR			
STRENGTH (S)		WEAKNESS (W)	
S1	Geographical position of Indonesia between two oceans and continents.	W1	Maritime security policy that still overlap between stakeholders.
S2	Physical form and area of country.	W2	The high rate of unemployment and social inequality.
S3	Good political stability in the country	W3	Natural resources are still managed by many foreign parties.
S4	The national economic growth is quite high.	W4	The gap of educational level between regions in the border state of country.
S5	Natural marine resources both inside and on the surface are abundant.	W5	infrastructure development in regional still uneven
S6	Demographic bonus of the population with a large workforce.	W6	Vulnerable to illegal levies, abuse of authority and corruption from stakeholders.
S7	Maritime-oriented from the Government Policy	W7	Information systems are still vulnerable to attacks from cyber enemy
S8	free-active politics from the country.	W8	Military technology still linger
S9	Character and history as a maritime nation.	W9	welfare for the crew of the Navy and other stakeholders is still limited.

EXTERNAL FACTOR			
OPPORTUNITY (O)		THREAT (T)	
O1	Indonesia has the opportunity to become the second largest maritime country in the world.	T1	Piracy
O2	As a new hegemony in Asia-pacific, a counterweight of China and US	T2	Illegal Imigrant and human trafficking
O3	The high economic growth encourages the growth of goods traffic by sea.	T3	Drug trafficking, smuggling of goods, weapons and military technology.
O4	A good national state budget encourages increased strength for the Navy capability and other	T4	The threat of terrorism both from inside and outside the country.
O5	Demographic bonus as a large market and abundant labor for the Navy and other stakeholders.	T5	Armed attacks, and violations of territorial boundaries from other countries.
O6	The growth of maritime domain awareness for the people.	T6	The threat of cyber attack.
O7	The existence of technology transfer for maritime service industry.	T7	Hunting and looting of marine resources, and illegal fishing.
O8	Utilization of marine resources for the welfare of the people.	T8	As a logistical shift path and war equipment, in case of armed conflict between other countries.
O9	Participate in the determination of world maritime security policy as a member of IMO.	T9	Threats from loss of natural resources and outer islands.

Based on table 2 upon, we have nine points for strength analysis factor and nine points for weakness analysis factor. Based on table 3 upon, we have nine points for opportunity analysis factor and nine points for threat analysis factor.

From the result of SWOT analysis, it was obtained SWOT matrix which gives a description about maritime security strategy. The strategy is contained in the SWOT matrix table below:

Table 3. Matrix Strategy of SWOT Analysis

		INTERNAL FACTORS			
		STRENGTH (S)		WEAKNESS (W)	
EXTERNAL FACTORS	OPPORTUNITY (O)	Strategy I (SO)		Strategy II (WO)	
		(SO)1	• Utilization of marine resources to support renewable energy at sea, and open employment for the community.	(WO)1	• Establish an integrated task force with fellow stakeholders in maritime security.
		(SO)2	• Development of infrastructure and connectivity at sea.	(WO)2	• Implementing re-negotiations with foreign parties in the management of marine resources.
		(SO)3	• Increase of state budget percentage for the maritime sector in the development of Navy capability and other stakeholders.	(WO)3	• Development of educational infrastructure in every coastal area and the addition of teacher quota.
		(SO)4	• Utilization of the abundant labor force in recruitment of Navy crew and other stakeholders.	(WO)4	• Establish a task force to eradicate corruption and illegal levies on marine sector.
		(SO)5	• Rebuild culture as a maritime nation.	(WO)5	• Cooperation with developed countries with technology transfer for military infrastructure development.
		(SO)6	• The use of the country's active-free politics as a mediator for China and US hegemony in Asia Pacific.	(WO)6	• Build a strong foundation of information systems in maritime areas.
		(SO)7	• Development of maritime services industry and technology transfer cooperation with developed countries.	(WO)7	• Equitable development of maritime infrastructure and connectivity in coastal and border areas.
	THREATH (T)	Strategy IV (ST)		Strategy III (WT)	
		(ST)1	• Increase of state budget percentage for the maritime sector in the development of Navy capability and other stakeholders.	(WT)1	• Establish an integrated task force with fellow stakeholders in maritime security.
		(ST)2	• Development of maritime infrastructure and connectivity in coastal and border areas to open logistics channels.	(WT)2	• Equitable development of maritime infrastructure and connectivity in coastal and border areas.
		(ST)3	• Rebuild culture as a maritime nation.	(WT)3	• Cooperation with developed countries with technology transfer for military infrastructure development.
		(ST)4	• Negotiations with neighboring countries in trans-state sea border agreements.	(WT)4	• Development of maritime services industry in coastal areas, for the opening of employment in each region.
		(ST)5	• Development of shipping education infrastructure in every coastal area and the addition of teacher.	(WT)5	• Development of educational infrastructure in every coastal area and the addition of teacher quota.
		(ST)6	• Implementing re-negotiations with foreign parties in the management of marine resources.	(WT)6	• Build a strong foundation and infrastructure of information systems in the maritime sector.
		(ST)7	• Build a strong foundation and infrastructure of information systems in the maritime territory to cope the cyber threats.		

Based on table 4 upon, this paper is given four strategies for national maritime security. The strategies consist of seven points for strategy I Strength-opportunity (SO); seven points for strategy II Weakness-Opportunity (WO); six points for strategy III Weakness-Threat (WT); seven points for strategy IV Strength-Threat (ST).

Analysis of Fuzzy MCDM

The next step is to determine the choice strategy by the Fuzzy MCDM (F-MCDM). The choice of strategy that exists after SWOT analysis is given weight in the ranking. Previously, a questionnaire was completed by 6 competent expert assessors (E1; E2; E3; E4; E5; E6) in the field of maritime security.

Scale questionnaire consists of two apart, linguistic scale and a numerical scale. The example of linguistic scale is "very weak", "weak", "moderate", "strong" and "very strong", while numerical scale interval of values take 1-10, as the table below

Table 4. Questionnaire Scale for Linguistic level

Aspect / Criteria	Very Weak		Weak		Moderate		Strong		Very Strong	
	1	2	3	4	5	6	7	8	9	10

After obtaining the data from the questionnaire, the next step is to recapitulate the results of the questionnaire and data processing. The steps of data processing using MCDM fuzzy algorithm, are as follows:

The result of qualitative criteria assessment from Expert judgement (E1-E6).

Table 5. Result of Qualitative Criteria Assessment

NO	Criteria of Good Strategies	E1	E2	E3	E4	E5	E6
1	Effective communication among stakeholders.	6	8	7	7	5	7
2	The Strategy has good information about security and intelligence.	9	7	8	8	6	9
3	There is continuous assessment of existing security processes, procedures and technologies.	6	6	9	7	7	8
4	Strategy is Supported by the ability and the number of personnel adequate.	4	9	8	8	7	9
5	The Strategy Supported by policies and funding from the Government	8	8	9	9	7	10
6	There is a good and effective interaction within the organization or between organizations.	6	7	8	5	7	6
7	There is consistency in the application of systems, processes and protocols.	5	7	6	8	7	7
8	Maritime security strategy shall synergize with risk management, quality, environment and other safety systems.	7	7	8	8	5	7
9	There are metric measurements, accurate monitoring and reporting procedures.	6	7	8	5	8	7
10	There is regular and ongoing training	4	7	8	8	6	7
11	There is an adequate control center.	7	6	9	8	8	5

The result of preference assessment for each alternative based on existing qualitative criteria.

Table 6. Result of Preference Assessment

NO	QUALITATIVE CRITERIA	Strategies	E 1	E 2	E 3	E 4	E 5	E 6
1	Effective communication among stakeholders.	S1 (SO)	6	6	9	8	7	9
		S2 (WO)	9	8	7	9	9	9
		S3 (WT)	8	7	9	9	9	8
		S4 (ST)	8	6	6	8	9	6
2	The Strategy has good information about security and intelligence.	S1 (SO)	6	6	7	6	8	7
		S2 (WO)	8	7	9	8	7	9
		S3 (WT)	6	7	4	7	6	6
		S4 (ST)	9	9	7	7	9	9
3	There is continuous assessment of existing security processes, procedures and technologies.	S1 (SO)	8	9	8	7	9	8
		S2 (WO)	6	7	7	6	8	9
		S3 (WT)	7	6	7	6	8	7
		S4 (ST)	7	5	7	8	8	7
4	Strategy is Supported by the ability and the number of personnel adequate.	S1 (SO)	8	8	9	9	7	8
		S2 (WO)	6	7	5	6	5	6
		S3 (WT)	6	7	8	6	8	7
		S4 (ST)	6	8	7	6	6	7
5	The Strategy Supported by policies and funding from the Government	S1 (SO)	8	8	9	8	9	9
		S2 (WO)	8	7	7	7	8	8
		S3 (WT)	6	8	7	6	8	7
		S4 (ST)	9	7	7	7	8	9
6	There is a good and effective interaction within the organization or between organizations.	S1 (SO)	6	8	8	6	7	7
		S2 (WO)	7	8	6	6	8	9
		S3 (WT)	7	9	8	8	6	6
		S4 (ST)	8	8	7	8	6	8
7	There is consistency in the application of systems, processes and protocols.	S1 (SO)	8	8	7	7	6	6
		S2 (WO)	6	5	5	6	9	6
		S3 (WT)	6	8	7	6	6	5
		S4 (ST)	6	6	7	8	7	7
8	Maritime security strategy shall synergize with risk management, quality, environment and other safety systems.	S1 (SO)	8	8	7	8	9	7
		S2 (WO)	6	7	7	6	8	9
		S3 (WT)	6	6	8	5	5	8
		S4 (ST)	8	8	7	8	9	8
9	There are metric measurements, accurate monitoring and reporting procedures.	S1 (SO)	6	6	8	5	7	6
		S2 (WO)	7	6	8	8	6	6
		S3 (WT)	6	8	7	7	6	6
		S4 (ST)	8	7	7	6	8	8
10	There is regular and ongoing training	S1 (SO)	6	8	7	8	6	7
		S2 (WO)	8	7	7	8	6	7
		S3 (WT)	8	6	7	9	8	6
		S4 (ST)	7	8	9	8	8	9
11	There is an adequate control center.	S1 (SO)	6	8	6	7	8	6
		S2 (WO)	8	7	9	8	6	8
		S3 (WT)	8	8	9	6	6	7
		S4 (ST)	7	8	8	6	8	8

S2 (WO)	0,260	II
S3 (WT)	0,208	IV
S4 (ST)	0,276	I

Figure 4. Questionnaire Scale for Linguistic level

Step 12. The result of the best alternative based on the value of the highest rank.

Based on Fuzzy MCDM Analysis, this paper generates the weighting of strategies available in maritime security control. Strategy 1 (SO) has a weight of 0.256 as a third rank; Strategy 2 (WO) has a weight of 0.26 as a second rank; Strategy 3 (WT) has a weight of 0.208 as a fourth rank; Strategy 4 (ST) has a weight of 0.276 as a first rank. Then, the strategy chosen is Strategy 4 (ST) as a priority to use in maritime security control.

Borda Method Analysis.

In this research, Borda method is used to provide priority allocation scale to existing sub-strategy and budget allocation in selected strategy of previous Fuzzy MCDM analysis.

Table 8. Result of sub strategy weighted

Code	Strategy IV (ST)	Weight	Priority
(ST)1	Increase the percentage of State Budget for maritime sector in the development of force of Navy and other stake holder to carry out the operation of sea crime action.	0,057	1
(ST)2	Development of maritime infrastructure and connectivity in coastal and border areas to open logistics channels.	0,071	2
(ST)3	Rebuild culture as a maritime nation.	0,168	5
(ST)4	Conducting negotiations with related neighboring countries in handling sea border country transfers agreement	0,089	3
(ST)5	The development of shipping academy infrastructure in every coastal area and the addition of teacher.	0,232	7
(ST)6	Carry out re-negotiations with foreign parties in the management of natural resources controlled by foreigners.	0,221	6
(ST)7	Build a strong foundation and infrastructure for information system in the maritime territory to cope with cyber threats.	0,161	4

Table 9. Percentage of State Budget Allocation

Code	Strategy IV (ST)	%
(ST)1	Increase the percentage of State Budget for maritime sector in the development of force of Navy and other stake holder to carry out the operation of sea crime action.	22,857
(ST)2	Development of maritime infrastructure and connectivity in coastal and border areas to open logistics channels.	21,429
(ST)3	Rebuild culture as a maritime nation.	11,786
(ST)4	Conducting negotiations with related neighboring countries in handling sea border country transfers agreement	19,643
(ST)5	The development of shipping academy infrastructure in every coastal area and the addition of teacher.	5,357
(ST)6	Carry out re-negotiations with foreign parties in the management of natural resources controlled by foreigners.	6,429
(ST)7	Build a strong foundation and infrastructure for information system in the maritime territory to cope with cyber threats.	12,500

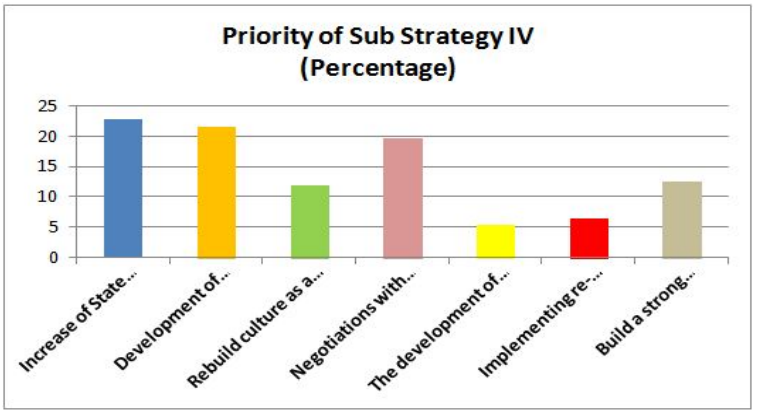

Figure 5. Percentage of State Budget Allocation

Based on Borda method the first priority of sub strategy from strategy 4 (ST) is increasing of State Budget percentage for the maritime sector in the development of Navy Capability and other stakeholders to carry out the operation of sea crime action with allocation of the budget is 22,587%.

4. CONCLUSION

The economic development of Indonesia and regional areas gives an effect on national security, including maritime security sectors. Indonesia ~~has~~ encounters some challenges ~~to~~ in managing maritime security with various dimensions, including defense and security perspective.

Based on SWOT analysis, the paper give~~ns~~ four strategies for national maritime security. The strategies consists of seven points for strategy I Strength-opportunity (SO); seven points for strategy II Weakness-Opportunity (WO); six points for strategy III Weakness-Threat (WT); seven points for strategy IV Strength-Threat (ST).

Based on FMCDM method, Strategy 1 (SO) has a weight of 0.256 as a third rank; Strategy 2 (WO) has a weight of 0.26 as a second rank; Strategy 3 (WT) has a weight of 0.208 as a fourth rank; Strategy 4 (ST) has a weight of 0.276 as a first rank. Then, the strategy chosen is Strategy 4 (ST). Based on Borda method, the first priority of sub strategy from strategy 4 (ST) is increasing of the State Budget percentage for the maritime sector in the development of Navy Capability and other stakeholder to carry out the operation of sea crime action with allocation ~~is~~ of 22,587%.

For the future work, the integrated method (SWOT-Fuzzy MCDM-Borda) can apply in any other sector of decision making.

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PSYCHOLOGICAL PREPAREDNESS IN JUDO AND ITS ROLE IN THE MULTILATERAL PREPAREDNESS OF THE FUTURE OFFICERS

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The study outline the importance of the psychological factor of Judo in the multilateral preparedness of the future Air force officers, which along with other adapted components of the sport training (physical training – general and specific, technical and tactical, and theoretical), in accordance with specific requirements of the military academic, have to have as fundamental objective the following: a superior index of mental and psychical health, the education / development of the psychic qualities (volitional, emotional, intellectual) at the excellence level, and not the least, a strong personality, specific to the modern, contemporary fighter, capable to adapt to ever changing situation from military operations theatres.

Keywords: *psychological preparedness; Judo; Mizo no Kokoro; Zanshin; judoka; Tsuki no Kokoro*

1. INTRODUCTION

Modern sport training recognizes and accepts that the natural born or gained psychological abilities are decisive during any kind of competition. The majority of specialists in this domain are agreed upon the fact that the athletes (judoka in this respect) can develop themselves a large spectrum of psychological capabilities by deliberate training. In this respect, the psychological training should be the basic component of the whole training and to represent the key of success of proposed objectives achievement.

During Judo competition or training period a string of psychic and emotional qualities are activated and have to be controlled by judoka: self-confidence, stress strength, courage, total conferral, perseverance, determination, and permanent initiative. In the same time the intellectual qualities have to be managed ~~as~~: attention, intention, observation, intuition, decision making, creativity, and adaptability.

Dragnea A, cited by Dan Deliu [1], sustained that the combat techniques may be viewed as motric answers, attitudes, gestures, psychological processed regarding various issues that arise from

external and / or internal fight environment, simple or complex stimulus which are processed by the combatant's brain. Based on the importance and the utility of these motric answers, ~~it can be evaluate~~ the combatant psychic can be evaluated during the battle and its indirect interpretation. Through movement and motricity the human body creates, fight and obtain performances over him, other individuals and even the nature.

The main battle is to be with ourselves, we have to win the unseen enemy from our deep mind. All of this would drive through find the real person from what we believe about us.

2. THE AIM OF RESEARCH

The aim of this paper is represented by the scientifically reasoning of the importance of psychological preparedness in Judo, adapted and implemented during the training and development processes of specific psychic abilities of the future Air force officers.

2.1. The objectives

The objectives are the following:

A. Theoretical objectives

- Study of the relevant bibliography and to establish the methodology about psychological preparedness with the impact on multilateral training of the Air Force military students;
- Motivation of the military students to practice Judo and the role of psychological preparedness during the training of future professional combatants with winner mentality;

B. Practical objectives

- Development of the psychological preparedness project, specific to Judo and adapted to the requirements of the Air force Graduate Model;
- Establishing an optimal model of psychological preparedness and argumentation of its efficiency.

2.2. The research hypothesis

- If we will identify the adaptable features from the psychological point of view, for the ages between 19 and 21, then it would be possible to influence the process of multilateral training of the military students;
- If the influencing of the psychological abilities, specific to Judo, will have a positive impact over the bio-psycho-social development and personality, then it would be possible to increase the psycho – physics and professional performance.

3. PSYCHOLOGICAL PREPAREDNESS

The psychological preparedness in combat, based on Dan Deliu opinion [1], comprises the ensemble of general and specific measures capable to develop the links among combatant's psychic and the training and competitions demands and may lead to better performance achievement.

Ioan Hantau [2], sustained that psychological preparedness in Judo supposed to develop at a superior level all emotional and intellectual psychic qualities, by using a range of general and specific means of Judo.

The same author is considering that psychological preparedness is borrowing some means from the other components of the training (physical training, technical and tactical, theoretical) and is influenced mostly by their level of development. Therefore, as much as a Judoka perceived that his level of preparedness is high, and he knows a large number of techniques at an excellent level, he will be more self-confident, courageous, will manifest more initiative in combat, and will control better negative emotions in order to attain favorable results.

The psychological preparedness must be permanently performed during training process, without allocating special time along specific lessons, but using various characteristic means of other training components. Each exercise, technical structure, any moment of the training must totally participate to the psychological preparedness.

Ioan Hantau [2], synthetizes the means of this kind of preparedness, by the three groups of psychic qualities necessary to judoka, as following:

A – Volitional;
B – Emotional;
C – Intellectual.

A. Volitional psychic qualities as firmness, courage, perseverance, decisiveness, initiative are required and decisive in practicing this noble form of combat, Judo.

The support of high intensity efforts during the training and competitions period is not possible without the enhancement at the highest level of psychic qualities by training means, where the fighters are facing ~~with~~ extreme situations:

- Performing fighting rounds (randori) with heavier or stronger partners;
- Changing the partners during fight (in torrents);
- Fighting session with dedicated theme: breaking joint locks, chokes, luxation;
- Performing series of repetition (Uchi-komi) when tired;
- General physical training with difficult conditions: running in

snow, wind, rain, cold, heat, variable terrain, and so on.

B. Emotional psychic qualities as self-confidence, fight conferral, responsibility regarding self-behavior and the result of the fight are qualities which have to be developed and enhanced during the fight, influencing even the other aforementioned qualities. Development of these qualities constitutes a process during training sessions, judoka solving special situations created by the professor, as following:

- Randori rounds where judoka have to impose its technical and tactical superiority;
- Selection of relevant partners to perform preferred technics;
- Unannounced shorted randori rounds;
- Establishment of reachable control norms and exercises;
- Stimulating the judoka by diplomas, plaques, medals;
- Promoting judoka in front of the team;
- Using the best athletes to conduct parts of training: warmup, technical mistakes correction).

C. Intellectual psychic qualities as snap thinking and decisions, being very observant, intuition, attention, imagination and creativity represent an integer for proposed objectives achievement. These qualities are determined mostly by individual genes but they can be developed through training process using appropriate means:

- Rounds with specific tasks as Yaku-soku-geiko;
- Observation of the valuable athletes behavior during randori sessions, especially how they employ subtle technique and tactic;
- Rounds with specific theme, the task consist in counterattacks on the partner mistakes;
- Randori rounds with disruptive factors: loud music, colleagues shouts, wrong directions from the couch;
- Creation of the complex situations where judoka have to find the best attacks and/ or counterattacks. [2]

Education and development of the aforementioned categories of psychic qualities will create the foundation of the future fighters with multilateral preparedness, capable to control their mind and body. Regarding this, the Judo techniques will become driving systems and specific motric actions performed with high accuracy during training sessions and competitions.

Vlad Grigore Lascu [3], emphasize that judoka must have the mind supple as water, meaning judoka must be receptive and adaptive to any situation created by the opponent, without providing any

warning to him/ her and in each fight have to have Mizu-no-kokoro, Zanshin and Tsuki-no-kokoro.

Mizu-no-kokoro (thought like water) is illustrated by grand masters analog with still, calm water, without any wave, ready to reflect perfectly an image. To achieve this stillness, mind should never be disturbed by any factor.

Zanshin (alert spirit) emphasize the living mind, ready to gather all the mental and physical energy in order to perform a certain action without lags. The thinking process must avoid laziness, must surround the opponent, without any particular or special emotion. The mind must not be dependent on specific moments or stuck. The mind must go beyond the adversary, actually through him / her. Mental activity surround permanently the opponent by unique and continuously sensation; in case of immovable, the mental activity can be encountered by any mental stronger opponent. A well prepared judoka, from the mental and physical point of view, will not prepare strategies or make eye contact, will not look to the place to hold. Judoka will search for the big picture and act accordingly with the ever changing situations.

Tsuki-no-kokoro (the mind like Moon) outlines the surroundings of the opponent in his / her integrality, as the Moon diffuse light glows all the objects equally. Between the light source and illuminated objects clouds may interfere, interpreted as fear, irritation, writhe, single focus point. Accordingly, the opponent must be seen as a whole and the sight may not stop on any individual point, but to perceive any small gesture and react adequately.

The same author sustained that in Judo is very important Hen-o (the reflex). The reflex is defined as unwitting, a natural reaction to a stimulus which can be developed by training.

Natural reflex (in example: if somebody threaten us with a hit, we instinctively rise our arms for protection) is different than the acquired one (in example: when avoiding an opponent hit) but both are spontaneous, without mind intervention. The stimulus (tactile, visual or audible) is transmitted instantly to the motor nerves which will determine the muscular response, faster or slower.

In Judo, some unadvised people may perceive as a reflex something that is very controlled movement. For example, performing techniques due to opponent action creates counter techniques. This counter technique is a voluntary act, meaning an enhanced ability performed at the right moment, with high speed looking as a reflex. When a real attack occurs, the fighter will act immediately and in reflex mode, with the possibility of success or

failure, depending on the attack. In case ~~on~~ of false attack, the combatant will uncover his / her defense unintentionally and will need to rapidly recover without mind intervention, which can delay the reaction. The command of reflex has to be done only when the attack is valid. Defense movement as counter technique must be explosive.

The difference between immediate reflex and mental reflex (Hen-o) consist in reaction time, not in the defense movement performing time. Both are very short, the second being the shortest because the fighter has to regain the opponent advance. The movement itself is not seen ~~as~~ or conceived as reflex and the mental intervention is taking place before the start of the movement. The performed technique is ~~a~~ controlled by brain action, depending on specific stimulus and certain environment, accomplished with high speed.

4. PSYCHOLOGICAL FACTOR INFLUENCE OVER MULTILATERAL PREPAREDNESS OF THE FUTURE AIR FORCE OFFICERS

Multilateral physical training, accepted by the majority of specialists, is named also general training.

Dan Deliu [1] presents that multilateral preparedness seeks to optimize the development level of morpho-functional indicators, as motric qualities (speed, coordination, strength, resilience) at higher level, assumption of effort during the fight and represents the foundation to upgrade special motric features (all types of speed~~s~~, precision, coordination, dynamic equilibrium, ambidexterity, motric quality force) at various ratios, specific to the aim.

Multilaterally, as military preparedness feature, the multilateral training consist in a large range of domains, including psychological factor in Judo, which may lead to the education and development of psychic abilities. The psychologic component may reach maximum effect when other training components (physical, technical and tactical, theoretical) also are well structured and are at a high stake, as following:

- Development to the military students of the psychical strength to the stress, along with training and development of specific abilities to cope with ever changing conditions in the military operations theatre, in order to accomplish the missions;
- Influencing psycho-motric qualities of the future officers: time reaction according with the situation, motric learning speed,

decision making speed in extreme conditions, creative thinking;
- Mastering emotions (self-control) during crisis situations, specific to military environment;
- Training and development teamwork competencies (one for all, and all for one). In Judo we may enhance the performance of a technique working with multiple partners;
- Training and development of leading qualities and choosing of this person by using sociometric measurement. Self-confidence, courage, will, willingness for overachieving, creative thinking, adaptability are some of the leader qualities which correspond with Judo;
- Analysis of maximum effort responses specific to military training (marches performed on long distances, various terrain, all weather conditions) and training and developing specific abilities which originate in maximum effort performed during Judo training, where psychological mobilization is essential;
- Learning by military students of psychological and physical recovery methods (structure of respiratory exercises, autogenic training, Yoga asana, meditation);
- Training and development of self-evaluation capacity of psychological and physical preparedness level;
- Training and development of spatial and time receptiveness. As any judoka perceives the fighting space during training sessions and /or competitions with stable stances the same behavior is expected to be employed in real situations on military operations theatre.

5. CONCLUSIONS

To conclude, it is very important to outline the importance of all components of Judo training which lead to development of psychological capacity (will, perseverance, emotional stability, stress resilience) which will stand as foundation of training and development of strong personality with winner mentality of the future Air Force officers. The key through success is represented by the chosen way to conceive the training plans, how the efforts are driven, the selected Judo means for the military purposes.

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TYPOLOGY OF ADMINISTRATION IN NATIONAL SECURITY

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Summary: *This article presents the types of public administration and their connection with the security issues. The author, taking into consideration the subjective and objective approach, presents the existing opinions on administration types, and makes an attempt to systematise administration in national security, looking into military, national defence and national security administration.*

Key words: *national security system, public administration, military administration, national defence administration*

Introduction

A contemporary state apparatus is a great bureaucratic machine which includes a few types of state bodies: legislative bodies, judiciary bodies, controlling bodies and administrative bodies. According to H. Izdebski and M. Kulesza every state administration has two basic functions: the first one is the governing function, i.e. the implementation of the political programme which was the basis of its coming to power; and the second function is the performance of tasks of day-to-day administration resulting from the applicable laws. The common basis of the public authority entities activity in Poland is the binding legal system which regulates the principles of fulfilling by them the above indicated functions. All the entities of authority as well as administrative institutions acting in the whole area of public management need to fit in the legal framework [1].

There are the following types of administration: private administration – an organisation run by an individual in his/her own interest or in the interest of the third parties, and public administration – exercised by both state bodies as well as public (self-government) associations and other administration entities in the collective, public interest. From the subjective point of view, there are the following types of administration: state, government and self-government (local government). According to J. Boć, "state administration may be distinguished from the whole public administration due to its stability, sustainability and historical range. In the objective and subjective scope, the notion of state administration includes all manifestations of state activity and all state bodies, hence it encompasses also government administration which in contemporary literature is considered equivalent with state administration"[2]. Despite the fact that government administration is also state administration, for the purposes of precise separation of structures and scopes of activity, and also for the better presentation of relations between government administration and self-government administration, and finally to reflect in science real organisational facts, distinguishing separate state administration, which does not include government administration, is appropriate, logical and necessary. Such distinction is also significant due to the scope and division of tasks, competence from the area of national security of the state, government and local government bodies[3].

Nowadays public administration includes: the President of the Republic of Poland, the bodies of the Supreme Audit Office, the National Broadcasting Council, Human Rights Defender, National Council of Judiciary, bodies of the national bank of Poland (including the Monetary Policy Council), central administration bodies subject to the Sejm [lower chamber of the Polish Parliament], ambassadors and consuls of the Republic of Poland as state administration bodies abroad. All state administration bodies are appointed to act in and safeguard the highest level of public interest, i.e. the state interest[4].

Government administration is the combination of central and local bodies, offices and institutions serving the fulfilment of collective and individual human needs,

resulting from their social coexistence. The structure and organisation of government administration is complicated. At the central level there is central government administration. At the level of particular units of territorial division there is government territorial [local] administration. The structure of central government administration consists of a few segments: the government centre, i.e. the government and The Chancellery of the Prime Minister, ministries, central offices, state organisational units. The structure of local government administration consists of: general government administration, i.e. the provincial governor (*wojewoda*), consolidated administration, non-consolidated administration[5]. Government administration is characterised by organisational qualities not known to self-government or professional administration. The most important one of them is centralisation, which ensures the following values of government administration activity: speed, discipline in the scope of fulfilment of particular tasks, uniformity of decisions, government administration competence in the most important state and social affairs, effectiveness of decisions taken inside the centralised system[6].

Self-government administration - local government in accordance with the Polish Constitution is constituted by all inhabitants of the units of the main territorial division who by virtue of law constitute the self-government community. Local government participates in exercising public authority. The significant part of public tasks entrusted to the self-government in accordance with the relevant laws is performed in its own name and on its own responsibility. Territorial government fulfils public tasks not reserved by the Constitution or relevant laws for the bodies of other public authorities[7]. The essence of local government lies in the following elements: self-government subject and object and the way it fulfils its state administration tasks. The subject of local government activity is the community living in a particular area, organised into a local self-government union. The object of local government is public administration. The state imposes on local government the obligation to perform administration tasks. Performing public administration tasks by local government takes place on the basis of

decentralisation which assumes independent performance of tasks by self-government communities[8]. Local government administration differs from state administration, including government administration, only in that it is exercised by, protected by the court autonomous and independent (decentralised), bodies of local government units and that tasks it is entrusted with by a law are public tasks serving the fulfilment of the needs of people living on the territory of a particular self-government unit, called in the constitution and relevant laws self-government community. Self-government administration may be burdened with other public tasks in the form of commissioned tasks.[9].
From the point of view of the functions of public administration which it fulfils in the public interest, there are the following types of administration: classical policing and restricting function (government administration), service providing administration, administration exercising the proprietary and management rights[10].

ADMINISTRATION FUNCTIONS IN THE STATE

In connection with the discussed issue, the attention will be drawn to the policing and restricting administration, which when referred to means its classical functions, i.e. the policing functions. Administration interferes with citizens' legal sphere by limiting their freedom, property rights and imposing obligations, with the use of authoritative means and therefore it is called authoritative administration[11]. Authoritative (policing and restricting) administration, also defined as classical, includes restricting and distribution tasks performed by way of authoritative forms of administration activity, mainly administrative acts (permits, licenses, concessions), secured with the possibility of using state coercive means. Historically, the basic function of administration was initially the function defined as "administrative policing", which meant legal and actual activity undertaken by administration in order to eliminate threats against peace, security and public order. Today, administrative policing is associated with the maintenance and protection of order and security, removing threats to public order, life, health, etc. by public administration bodies, as a

rule in exceptional circumstances, often by way of special forms of activity, including coercive means. It is done by the bodies appointed for these purposes, uniformed and armed formations (the Police, Border Guards, Municipal Police, etc.) organised in a military fashion[12]. Authoritative administration undertakes activities consisting in staving off threats and eliminating dangers. Unexpected threats on a general scale: epidemics, natural or ecological disasters, restore its original, natural primacy and unquestionable authority[13].

As it has been earlier emphasised, these issues are connected with the classical policing function of the state, connected with the protection of the public order and collective security. From the very beginning, the policing and restricting function was connected with the pubic burdens (concerning people and property), incurred by members of the community in order to maintain institutions and equipment serving the protection of public order and collective security in different areas of life. These different types of public obligations (burdens) were of personal character, e.g. military service, and material character, e.g. services for the purpose of defence, or of fiscal character (taxes, defence expenses)[14].

The above arguments suggest that the classical policing function of the state is connected with achieving the state goals, understood as: maintaining independence and territorial integrity, enforcing unity and internal order, ensuring citizens well-being and [connected] with the (nation's gals, i.e.) maintaining national culture, continuing historical tradition, propagating the ethos, knowledge of language, preserving ethnic identity. The common and agreed area in between citizens' private interests and the raison d'état is called public interest (common good)[15].

In a democratic state, public interest is the effect of free clashing of different arguments which may be publically manifested and concern the organisation of public life. The exact content of public interest is constituted by all citizens who participate in the debate about the interests and values important for the survival of the community. The raison d'état, in turn, constitutes the basic state interests (of the state as a whole and not only the ruling group); nowadays it includes the conditions that enable the state safe existence, maintenance of

territorial integrity and independence of its authority, free shaping of its form, favourable cooperation and peaceful competition with other states as well as civilizational development.

Another issue which needs to be pointed out is the problem of the obligation to "act for the common good" (public interest), resulting from the authorities' rights in the state. The right is a possibility – but not a necessity – of a quite free method of undertaking (also the obligation of) activity The assumptions of the state system rights impose the obligation to act in the direction called "public good". Any state system function and the articulation of its rights should express the obligation to act for common good. The defined range of rights is to serve public good. The range of rights is transformed into the burden of great duties lying with the entity that benefits from these rights or that enjoys them. The example is the system of obligatory military service or constant vigilance and concern for state security[16].

In the context of state security, including the obligations, such as the general defence obligation, what becomes significant are the administrative and legal relations consisting in the fact that an administrative entity addresses another entity, e.g. a citizen, and demands a service or imposes an obligation of service (e.g. for the purpose of defence) or grants permission – thus establishing a legal relation with this individual. The relations between the state, and public administration entities acting in its name, as well as citizens and other entities are based on administrative legal norms and therefore they are called administrative law relations[17].

In order to safeguard the existence, territorial integrity as well sovereignty and safe development of citizens, the state creates an appropriate system ensuring this security (the national security system). In a narrower meaning, it is the state defence system. The armed forces are a fundamental element of the defence system. Their basic task is to ensure the state's capability to defend and maintain readiness to oppose aggression within the scope of ally commitments. In the context of the earlier discussed issues, it is easy to notice that the armed forces do not operate in the sphere of socially useful professions, but in the sphere of professions necessary for the society which do not participate in the production and increase of consumer goods. They

are solely their consumers. Hence, the society (nation), caring about its security, decides to bear particular burdens connected with the maintenance of troops (legal regulations, financial expenses, etc., i.e. to bear appropriate burdens) as a professional national defence tool[18]. What becomes important here are relevant regulations in the area of defence which in the course of disputes, discussions, debates of the representatives of the nation are reflected in the binding law. Administration traditionally participates in the shaping and enforcing of policy, and it issues orders, bans and permits. With the progressing civilizational development it assumes, however, increasingly greater responsibility for the growing scope of public services (service providing administration)[19].

Service providing administration is understood as administration of social services, ensuring living conditions with the use of public institutions and supporting administration. Service providing administration is nowadays believed to be an equal, and sometimes even dominating function connected with fulfilling general needs. With the development of civilisation, administration functions change. What has started to play a special role is the function of fulfilling basic livelihood needs, especially in cities, and of organising services in the field of municipal infrastructure, education, culture and in the social sphere[20]. Service providing administration has two faces:

– a concern for every individual expressed by providing citizens with appropriate living conditions and their improvement, i.e. providing social services; such as services in the scope of education, health care, social welfare and basic care for the disabled;

– services for the whole community – the so called technical services, such as: the public transport, waterworks and sewage system, light and energy, waste management and other.

The role of public administration in this respect may be different and may consist, among other things, in the responsibility of the public authority for the standard of services provided by a private sector as well as in the direct organisation of service provision. It can even include rendering services via institutions belonging to the public sector (public utility enterprises and administrative

companies). Due to a great number of service consumers it may be done by the self-government at different levels[21].

As for infrastructure administration (administration performing proprietary functions – public property management), what may be noticed nowadays is the state management of huge infrastructure (roads, waterways, railway, national forests). Gradual privatisation and division into state property and public property did not fundamentally change the basic range of this management[22]. In all political conditions, administration exercises the proprietary rights (in the name of the state, district (*gmina*) or another local government unit) with reference to both public items, used to perform basic public functions, as well as to economic property (shares and securities, production plants or service centres, agricultural and forestry estates, etc.). Public property is used to perform tasks from the scope of broadly understood service providing administration, defined in relevant laws as day-to-day tasks, and to incessantly fulfil the collective needs by way of rendering commonly available services[23].

In order to perform tasks connected with the usage of entrusted property, and also its maintenance in good state, there are created separate organisational units, sometimes with separate legal identity, which are entrusted with management of particular elements of property (public utility enterprises, administrative companies). This property may, however, also be treated as a special type of economic property. Due to the size of the administrative property of some branches of government administration, there is a tendency to make more flexible the structures performing the most capital-intensive and responsible proprietary functions in this scope, namely investor functions (purchasing real property, modernisation and construction of buildings and structures). There are many property elements which may be used both for strictly administrative purposes as well as to conduct business activity, not to mention the fact that some types of activity may be considered either as performing public functions or as conducting business activity, e.g. privatisation of the state economic property was entrusted in principle to one of the ministers, however, competences in many matters were obtained also by some other government

administration bodies (e.g. within the Ministry of National Defence it was a procurement department dealing with arms purchasing) or specially for that purpose created particular state departments (e.g. Military Property Agency)[24].

TYPES OF ADMINISTRATION IN NATIONAL SECURITY

The so far presented classifications of administration were constructed from the subjective point o view, where there were distinguished state, government and local government administration. Classification of public administration from the point of view of its functions allowed to distinguish authoritative administration (policing and restricting), service providing (reconnaissance) administration, and administration exercising proprietary and management rights.

In relevant literature, there may be encountered the classification of public administration based on the regulations of substantive law (objective approach), which leads to the distinction of e.g.: customs, financial, economic, educational (school), environmental protection, agricultural, measures, assay, mining, forest, military, order and public security administration, foreign affairs administration[25] and many other areas systematised in accordance with the branches of government administration. S. Kasznica mentioned the following as the basic areas (branches, departments) of public administration: foreign affairs, military affairs, justice, treasury, as well as internal affairs administration which includes other areas of administration and constitutes the content of administration in its most accurate meaning. The aim of administration in this interpretation is ensuring the state as such integrity and security, the care for the maintenance and development of the state population's spiritual and material culture[26].

Basing on the objective approach (matter-of-fact division of tasks), the issues connected with security, national defence and armed forces are in literature referred to as: "military administration", "state defence administration", " national defence administration", "country defence administration", "public order and security administration", and lately "security administration"[27]. Such division concerning state defence administration or public order and

security administration resulted from the classification based on the regulations of substantive administrative law, which regulates relations between different entities and bodies of public administration, defines the structure of public administration, the rights and duties of the entities of administrative law relation[28].

According to J.S. Langrod, state defence administration includes: the armed forces, command of the armed forces, organisation of the armed forces authorities and state defence administration, rights and duties of military service, benefits and restrictions for the population in the state interest and state services provided to citizens in the scope of state defence. The author divides so understood state defence administration into military administration: "being the responsibility of the Military Affairs Ministry and its subordinate district and territorial military authorities, independent from the general administration authorities" and military affairs administration: "being a broader term that exceeds the framework of military administration. This administration is the responsibility of some departments of the Military Affairs Ministry, and in particular ministries there are separate organisational units in the form of offices created for that purpose. Locally, a particular role belongs to the provincial governor (*wojewoda*), as the government representative"[29].

The above division suggests that national defence administration consists of two elements. One is administration in the armed forces, which today would be called the military subsystem and concerns military administration, including organisation and implementation of processes oriented at comprehensive fulfilment of the armed forces needs in the scope of means necessary to live and fight[30]. The second element includes military affairs administration in the non-military subsystem of the state defence system (non-military defence preparations). Such division is confirmed by W. Sikorski's concept who in 1934 used the notion of modern country defence which assumed the division of the whole organisation of national defence into two equal parts: civilian and military organisation of national defence[31]. The passage of time, numerous war and peace experiences, confirmed the accuracy of such approach to the national defence structure. Both aspects, the civilian and military

one, are strictly connected by relations of cooperation and coordination at the central and local level and prepared to mutually support each other's activities in times of peace, external threat to state security (crisis) and war.

M. Wierzbowski presents a similar approach to this problem by treating state defence as "the basic task of any state, performed by all state bodies, public institutions, social organisations and all citizens". The majority of tasks belong to the executive authority bodies – the President of the Republic of Poland, the Council of Ministers, the Minister of Defence and other public administration bodies. These bodies perform the tasks – which are diverse and fulfilled in different forms – with the assistance of advisory bodies, specialised organisational units and designated services, connected in different ways, from the material, organisational, functional point of view, in accordance with the adopted war doctrine. Nowadays, defence is divided into military (i.e. the one using the armed forces) and civilian[32].

The authors of *Prawo administracyjne*, in turn, use the notion of "national defence administration" and define it as "organisation of direct and practical fulfilment of state tasks in the military scope" [33]. According to the author of this article (R. Sz.), it would be appropriate to say: in the national defence branch, as Articles 5 and 19 of the Act of 4 September 1997 on government administration branches[34] stipulate, that national defence branch in times of peace encompasses the issues of: the state defence and the Armed Forces of the Republic of Poland, participation of the Polish Republic in military enterprises of international organisations and the issues in the scope of fulfilment of military commitments resulting from international agreements – unless, pursuant to separate regulations, particular issues belong to the scope of tasks and competence of the President of the Republic of Poland or other state bodies. The above regulations correspond also with the understanding of the defence law which according to M. Krauze should be interpreted as "the collection of normative and legal provisions and regulations at different levels (international, national, local), aiming to ensure citizens of the Republic of Poland broadly understood security, and especially the protection of

independence, territorial integrity and inviolability of borders"[35].
Hence, already at this stage we may for didactic purposes make a distinction between defence administration – connected with public administration (the non-military subsystem of the state defence system) and military administration (government administration - connected with the military subsystem of the state defence system – the armed forces).

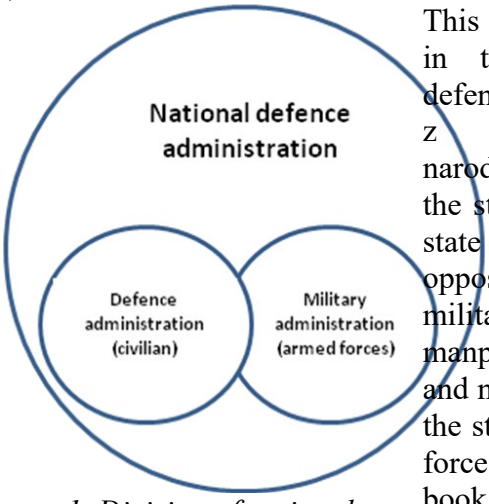

Figure. 1. Division of national defence administration.

Both types of administration will be jointly included in the national defence administration. The adopted distinction is the division by tasks in the defence sphere, some tasks will be fulfilled by "civilian administration" and others by military administration. The adopted division may be controversial and give rise to many difficulties, which results from the fact that the notion of "defence" is understood as: opposition to any threats and comprehensive ensuring of defence, by all state institutions including the state protection cells and crisis management which may refer also to military affairs and not only to natural disasters or technical failures[36].
This thesis finds confirmation also in the dictionary of national defence terms "Słownik terminów z zakresu bezpieczeństwa narodowego" where the defence of the state is defined as "the area of state security concerning the opposition to external political and military threats with the use of all manpower and equipment (military and non-military) at the disposal of the state" – i.e. not only the armed forces[37]. In turn, W. Kitler in his book entitled "Obrona narodowa w wybranych państwach demokratycznych" ["National Defence in the Chosen Democratic States"] offers an additional explanation concerning defence. The author states that "in a state, due to particular social needs, there are created, developed and spurred into action, when need arises,

particular systems which may be defined as specific state defence systems. In this way, we may differentiate, *inter alia*, the systems of: the defence of the state whose task is to oppose all external challenges and threats (crises) of political and military character"[38]. Then, in the system of state defence, W. Kitler differentiates the subsystem of defence management, military subsystem (armed forces), and non-military subsystem. Distancing two different subsystems, the military and non-military one, in the system of state defence leads, according to this author, to an erroneous conclusion that they fulfil two completely different functions, while both of them or their parts fulfil many functions of similar character. It concerns especially such issues as: ensuring security and inviolability of borders, state independence protection, crisis response, intelligence, and counterintelligence, protection of classified information, public order and other[39].

On the basis of the above deliberations concerning the area of the defence of the state it may be stated that this notion encompasses a broad subjective and objective range. From the subjective point of view, there is the defence system whose essential element – but not the only one – are the armed forces. The objective scope includes: state defence issues, armed forces issues, participation of the Republic of Poland in military undertakings. This thesis is confirmed by the earlier quoted Articles 5 and 19 of the Act of 4 September 1997 on government administration branches[40].

In accordance with the quoted statutory regulations, national defence combines the issues of state defence and armed forces. National defence is "the entirety of manpower and equipment (institutions) of the society (nation) and their activity connected with counteracting threats unfavourable for the national interest. This activity aims to appropriately prepare and use manpower and equipment at the disposal of the state to counteract all types of external and internal threats"[41]. Hence, the range of influence of national defence goes beyond the military domain, includes all spheres of state activity and concerns every citizen. It can, therefore, be assumed that national defence belongs to the most extensive forms of state activity and aims to properly use designated, adapted and prepared

manpower and equipment at its disposal in order to counteract any types of external threats. These threats may also penetrate the inside of the country and only then emerge to endanger the nations' existence and interest[42]. Hence, assuming the above explanations, the division of national defence administration takes the form presented in the following diagram, figure 2.

Figure. 2. National defence administration

In accordance with the law on government administration branches, the national defence branch in times of peace deals with the issues connected with the state defence and armed forces. Therefore, it seems justified to ask what is included within the scope of the national defence and armed forces issues defined by this law, and what the tasks of administration in this respect are.

Military administration functions on the basis of military law understood as "the collection of legal norms concerning the military, contained in the laws, decrees and regulations issued on their basis as well as orders, directives and other normative acts of generally binding character in the military issued by the national defence minister and the bodies authorised by him"[43]. Military law norms formulate the principles and forms of the organisation of the armed forces, their management, the course of military service, supplies for the troops and ensuring accurate functioning of the military management bodies. Thanks to clearly defined norms of military law, every commander and subordinate has clearly defined duties and rights, the scope of activities which should be undertaken in the interest of the military and resources used to ensure the performance of tasks. At the same time, the role of the military law is to regulate relations between commanders (managers) and subordinates, as the specific character of relations between soldiers is characterised by

particular legal restrictions. Thanks to military law norms, expressed in legal documents, the existing military order is consolidated. Military law is the means of protection against any violation of the armed forces combat readiness, it ensures discipline and military order. Military law norms constitute the basis of disciplinary and criminal sanctions used with reference to soldiers by units' commanders and the military judiciary and law enforcement bodies[44].

In literature, there may be found the notion of "military administrative law", understood as "the area of law which regulates the activity of the state bodies undertaken in order to perform legally designated tasks concerning the armed forces and the activity of state bodies appointed solely to perform tasks in the scope of defence – fulfilled by way of specific forms of activity[45]". The above definition says that military administrative law is the collection of norms of administrative law regulating not only the organisation of the armed forces and the activity of the armed forces, but also of other state organisational units appointed solely to perform tasks of state defence, and defined in the provisions of military administrative law, mainly by the General Defence Obligation Act and regulations issued on its basis[46].

As for defence administration of the non-military part of the state defence system , its activity will be connected with the organisation of defence tasks performed in the process of the state defence preparations[47]. The bodies of the authority, state administration, government administration and local government as well as entrepreneurs are responsible indirectly or directly for the issues connected with state defence preparations in all its areas indicated in the relevant legal acts[48].

Dealing with the "state defence issues" referred to in the above mentioned Act on government administration branches requires their specification in the form of tasks in the field of defence, i.e. defence tasks. Defence tasks constitute a part of tasks from the scope of national security, specified undertakings carried out by the bodies of the government authority and administration as well as other state bodies and institutions, local government bodies, entrepreneurs, non-governmental organisations and

particular citizens, and include: preparing the state to act and survive in the circumstances of an external threat to the state security, crisis and war; carrying out specific operational undertakings in these circumstances, removing the consequences after the threat has been eliminated, including restoring the condition of normal state functioning[49].

In accordance with the Act on general defence obligation of the Republic of Poland, and also other laws, ordinances and planning documents, defence tasks are performed by: the executive authority bodies – the President of the Republic of Poland, the Council of Ministers and Prime Minister, ministers in charge of particular departments of government administration, local (consolidated and non-consolidated) government administration bodies, including local military administration bodies, guards, services and inspections, the Polish Armed Forces, organisational units subordinate to or supervised by ministers, heads of central offices, provincial governors (*wojewoda*) and local government bodies, entrepreneurs, social organisations and citizens[50]. Defence preparations belong to more important tasks of all bodies of the government, local authority and administration, as well as other organisations and individual citizens. The Constitution of the Republic of Poland of 2 April 1997[51] defines basic obligations in the field of state deface of: the President of the Republic of Poland, the Council of Ministers and the Polish Armed Forces. Ministers organise the fulfilment of tasks in the scope of general defence obligation by their ministries, subordinate and supervised organisational units and entrepreneurs for whom they are the founding body[52]. Their tasks in the field of defence result from, among other things, the scope of responsibility for particular sections of government administration. Hence, the responsibility of particular ministers is much diversified. The greatest role in this respect is played by the National Defence Minister, although other ministers also have a significant influence on the fulfilment of defence tasks.

To sum up, it may be claimed after M. Wierzbowski that specific defence method, its scope, means and necessary activities in times of peace are defined by normative acts issued by chief and central state administration bodies of

general and special competence, as well as lower level bodies, including the ones performing the tasks of commanders of the armed forces types. They regulate, for example, the activities connected with personnel reserves, military service, alternative service, service in the civil defence, general self-defence, defence services, etc. In the military the great role is played also by different types of rules of service, of behaviour in particular circumstances, of using facilities, equipment, etc. Particular laws, normative acts as well as rules are as a rule implemented by administrative acts in the form of administrative decisions or official orders, the last ones – when being addressed to soldiers – called orders[53].

The above administrative division of national defence was based on the functioning state defence system. With reference to the notion of national security, a broader notion is used, namely the national security system. The national security system is formed by all bodies and institutions, in the light of the Constitution of the Republic of Poland and relevant laws, responsible for security and belonging to: the legislative, executive and judiciary branch, including the Parliament, President of the Republic of Poland, Prime Minister, Council of Ministers, central government administration bodies and other state central offices and institutions. Its significant elements are the armed forces as well as services and government institutions obliged to prevent and counteract external threats, ensure public security, carry out rescue actions as well as to protect people and property in emergency situations, and also local authorities and other legal entities, including entrepreneurs creating the industrial defence potential and fulfilling tasks in the scope of state defence. The national security system presented in the National Defence Strategy of 2007[54] (and repeated in the Strategy of Development of the National Security System of the Republic of Poland 2022) constitutes a big generalisation and, as many authors notice, it does not exist in this form in reality, although there are other specific systems (including the state defence system) that function and perform tasks from the area of national security[55].

The national security system consists of the national security management subsystem and the executive subsystems. The management subsystem is

constituted by the public authority bodies and managers of organisational units that perform tasks connected with national security as well as by the command bodies of the Armed Forces of the Republic of Poland. While, the executive subsystems are formed by manpower and equipment in the competence of ministries at the head of government administration branches, government administration central units, provincial governors (*wojewoda*), local government bodies and other state institutions and entities responsible for the fulfilment of tasks defined by law in the scope of national security. An important role in ensuring national security is played by the state security support systems, which do not fall into the traditional classification, such as critical infrastructure protection and the system of strategic reserve, and also a range of supplementary, specific operational systems (e.g. the system of state border protection, flood system, personal data and classified information protection system). The structure of the national security system presented in "The Strategy of Development of the National Security System of the Republic of Poland 2022", is based to a significant extent on public administration, from the national security management subsystem to specific operational systems.

M. Lutostański in „Prawo a bezpieczeństwo narodu i państwa", suggests distinguishing security administration and adopting the following definition: "security administration is the organisation consisting of different bodies and organisational units concentrated around them involved in the activity – on the basis of law and within its limits – oriented at ensuring internal and external security on day-to-day basis as well as in closer and further time perspective"[56]. The above definition refers to security administration as a certain structure and to security administration as activity on the basis of law. Therefore, the author rightly indicates that in the first area of security administration structure, competences are dispersed and what dominates is collective responsibility, which leads to decreased transparency in the scope of responsibility for the fulfilment of tasks in the scope of national security[57]. With reference to existing legal regulations on the basis of which security administration should base its activity, it is characterised by

excessive instability and ambiguity, as well as inconsistency also with the Constitution[58]. The author lists three main components of the nation and state security. The first includes the issues resulting from the security policy and concerns the security of the state constitutional system, citizens' security and public order. The second component refers to the issues connected with natural disasters and technical failures influencing the citizens' living conditions and the functioning of the state. The third component encompasses the issues resulting from the state external security policy (defence policy) and concerns security mainly of military character. All three components should be harmonised and subject to separate, clear and extensive legal regulation, typical for all, present or potential circumstances of the nation and state[59].

To sum up, the classification of components encompassing national security adopted by M. Lutostański may correspond with the division of security administration into its particular types. And so, we may distinguish the first component understood as public order and security administration, the second one - crisis management administration, and the third one - national defence administration. However, the analysis of only tasks prescribed in the National Defence Strategy of 2007, shows that the above division seems to be too narrow and does not reflect the essence of national security, since in the above mentioned strategy the tasks in the scope of national security were in principle assigned to all branches (sectors) of government administration, not only government administration branches but also to local administration and entrepreneurs.

Attempts to systematize the law in nationals' security are undertaken by, among others, W. Kitelr. Assuming the thesis that "the law of national security may be objectively perceived, as a part of a broader legal system, however, not as a uniform branch of law – the system of a particular branch of law, but as the collection (system) of the sources of law, and consequently the legal norms which are applicable to the achievement of national security goals"[60]. He presents the typology of national security law, where in the area of national security law he distinguishes: *the law directly regulating the field of national security* (*inter alia*, political

security law, military security law, public security and order law, economic security law, general security law, ecological security law, cultural security law, information security law, international security law) and *the law supporting the field of national security* (administrative law, banking law, customs law, aviation law, energy law, environmental protection law, criminal law, international public law and other)[61]. The regulation concerning ensuring security includes legal provisions defining the rules of conduct in the scope of security goals which are established by the bodies competent in the issues of this scope and instruments of their activity, as well as imposing particular obligations of behaviour, which in consequence constitute an administrative and legal system of ensuring the right level of security. It is supplemented by the provisions of regulations established by local bodies in the scope not regulated in the generally applicable regulations[62].

Referring to the quoted regulations concerning security administration, defence administration or military administration, the following conclusions may be formulated.

Attempts undertaken to classify administration in the area of national security cause many difficulties resulting, on the one hand, from the fact that the development (building) of the national security system of the Republic of Poland is in progress, and on the other hand, from the lack of legal regulations or the "fragmentation" of law in this respect. Another, and maybe fundamental issue, as W. Kawka notices - referring to legal regulations connected with public security - is the content of the said categories. So far these categories have not been positively defined by law, and in the doctrine this problem is discussed by referring them to particular areas of law. Semantic framework of both the notion of "public security" as well as the category of "public order (and peace)" seems to be particularly flexible. The same seems to be true about national security. In literature in the field of administrative law, as well as criminal law, it is emphasised that we deal with indeterminate notions, which due to that reason are difficult to define. To explain these categories the doctrine refers in a large extent to their intuitive comprehension in colloquial speech. The notions of security, peace and public order are generally understood as some

positive conditions of the social organisation whose maintenance guarantees the avoidance of particular harm by the whole organisation as well as its individual members[63].

CONCLUSIONS

Creating the typology of administration in national security, what needs to be taken into consideration are these criteria that allow to differentiate the type of administration depending on the functioning of its organisational structures in the state as well as tasks and competence in the scope of executive power justified by the applicable legal regulations. Taking the above into consideration, when looking into the national security system, the subjective approach should be taken into account (J. Boć), which distinguishes: state administration (President, etc.), government administration (Council of Ministers, Prime Minister, ministers, provincial governor (*wojewoda*)) and local government. The above division results from the need of precise division of structures and ranges of activity, and also ensures better exposure of the relation between government and local administration, and finally it is done out of obligation to reflect in science real organisational facts, distinguishing state administration, which does not include government administration, is appropriate, logical and necessary. Such division is significant also due to the scope and separation of tasks, competence from the area of national security performed by state, government, and local government bodies.

Objective approach allows to distinguish numerous administration branches, such as construction, education, health care, social affairs, foreign affairs, military affairs, justice, tax and internal affairs administration. Objective approach allows to divide and precise tasks to be fulfilled by particular departments. Such approach is reflected in the provisions of the National Security Strategy of 2007. The aim of so understood administration is to ensure the state as such integrity and security, and the care for the maintenance and development of spiritual and material culture of the state population.

The classification of public administration from the point of view of its functions allowed to distinguish policing and restricting administration (authoritative

administration), service providing administration, as well as administration exercising proprietary and management rights. Any of the listed functions will be of significant importance for national security, while it needs to be stressed that the role of particular functions (of administration) will change depending on the readiness of the national security system (basic readiness, crisis readiness, full readiness)[64]. With the growing readiness of the security system, the importance of the policing and restricting function will increase which consists in the increased number of orders of "activity for the common good" (public interest), resulting from the authority's rights in the state (e.g. connected with obtaining public administration bodies permits to change the place of residence or an order to temporarily abandon conducting of business activity of a particular type, limiting access to consumer goods). Also public burdens (personnel and property) borne by members of the community will increase for the benefit of public order and collective security in different areas of life, including the possibility of using state coercive means (e.g. personal, material and specific services). At the same time, the rights and liberties may be restricted in the scope of freedom to conduct business activity (e.g. by total or partial restrictions on supplies for the population), of educational activity (e.g. temporary suspension of school lessons), to organise and conduct any gatherings, forming associations (by a temporary order to abandon the activity of registered associations, political parties, trade unions, social and professional organisations).

Similarly, in the case of service providing administration and infrastructure administration, ensuring security will be connected with the care for every citizen by providing citizens with appropriate living conditions (e.g. ensuring educational services, health care, social welfare) as well as ensuring supplies for the whole community (e.g. waterworks and sewage system, light and energy).

The presented deliberations concerning national defence administration and military administration indicate that there is a significant divergence in the understanding of national defence, the defence of the state and armed forces, which consequently leads to different understanding of military administration, defence

administration, state defence administration. The armed forces (troops) are often identified with national defence and country's defences[65]. It is also proved by provisions of the quoted sources, although there is also a division concerning the activity referring to the armed forces and to defence preparations conducted in the non-military subsystem. Adopting the division into military administration and national defence administration it needs to be emphasised that in both cases there function organisational structures which have competence and perform tasks in this respect.

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[2] *Administracja publiczna,* ed. J. Boć. Wrocław 2003, p. 45.

[3] Another division of administration in security is offered by M. Lutostański who lists state, public and self-government administration. Cf.: M. Lutostański, *Prawo a bezpieczeństwo narodu i państwa*. Łódź-Warszawa 2011, p. 30. S. Langrod points out the lack of appropriate precision in using adjectives on the same conceptual plane, e.g. the notion of "state administration" is often used wrongly instead of "government administration", and the notion of "public administration" is used either to refer to "state administration" or to emphasise the reference to "self-government administration". J.S. Langrod, *Instytucje prawa administracyjnego. Zarys części ogólnej*, v. l. Kraków 1948, p. 169.

[4] *Administracja publiczna*, ed. J. Boć, op. cit., pp. 45-63.

[5] E. Zieliński, *Administracja rządowa w Polsce*. Warszawa 2001, p.14.

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[7] *Constitution of the Republic of Poland of* 2 April 1997, Articles 16 and 163.

[8] *Prawo administracyjne. Część ogólna,* ed. Z. Niewiadomski. Warszawa 2000, pp. 144-145.

[9] *Administracja publiczna*, ed. J. Boć, op. cit., p. 59.

[10] According to the authors of *Prawo administracyjne* (ed. Z. Niewiadomski, op. cit., p. 22), administration, depending on the dominating character of regulations, may be divided into different types and spheres: internal and external, authoritative and non-authoritative. The broadest adopted division is the one into: interfering administration, service providing administration and administration dealing with infrastructure. In turn, H. Izdebski and M. Kulesza (*Administracja publiczna*…, op. cit., p. 104) list the following types: classical policing and restricting (police) administration, service providing

administration (public services), administration exercising proprietary rights (managing public property).

[11] E. Ochendowski, *Prawo administracyjne. Część ogólna.* Toruń 2004, p. 27.

[12] Z. Duniewska, B. Jaworska-Dębska, R. Michalska-Badziak, E. Olejniczak-Szatowska, M. Stahl, *Prawo administracyjne. Pojęcia, instytucje, zasady w teorii i orzecznictwie*. Warszawa 2000, p. 17. Sometimes public services which dispose of armed forces are distinguished as a separate category. Then, next to administrative bodies there are distinguished the coercive bodies or apparatus. The state enforcing character is expressed in different ways. Such a manifestation may be the existence of the apparatus which systematically and openly uses coercion inside the state (e.g. the police, prosecutor's office, courts) or in external relations (e.g. the armed forces). W. Lamentowicz, *Państwo współczesne.* Warszawa 1996, p. 2.

[13] Z. Niewiadomski, op. cit., p. 41. For contemporary complicated and multifaceted rescue activities it is extremely important to establish, at every level of administration, a body which in such a situation is entrusted with the managing and coordinating role (e.g. provincial governor (*wojewoda*)).

[14] H. Izdebski, M. Kulesza, op. cit., pp. 106–107.

[15] Public interest is often associated with the notion of common good. Common good should be understood as the sum of social life conditions which allow particular members of the society to achieve, more fully and easier, their own perfection. Common good refers to the life of all. It is based on three significant elements: firstly, the respect for an individual as such, secondly, common good demands of social well-being and community development, thirdly, common good constituting peace, i.e. sustainability and security of just order. Cf. W. Lamentowicz, op. cit., pp. 41–43. From the economic point of view, what is significant is the notion of sheer public good. It is good that does not require to be competed for and noone can be excluded from it, "if someone benefits from public good, everybody benefits from it". A good example here can be national defence. Defence does not need to be competed for, which means that all inhabitants of a defended area enjoy its benefits. Moreover, noone can be excluded from national defence; it is impossible (and surely impractical) to designate and exclude from the national defence system a town or region. W.F. Samuelson, S.G. Marks, *Ekonomia menedżerska.* Warszawa 1998, p. 623.

[16] Cf. *Podstawy wiedzy o państwie*, ed. A. Rzegocki. Kraków 2000.

[17] Cf. E. Ura, E. Ura, *Prawo administracyjne*. Warszawa 2000, pp. 39-44.

[18] Jean de Bueil in the military treatise of 1466 „Le Jouvencel" claimed that ″all empires and authorities have their beginning in a war". In the Middle Ages (and not only) building a state apparatus and its maintenance required soldiers. Already in the year 1300 it meant employing mercenary forces contracted usually for a short period. Practice of paying all soldiers requires huge financial resources which could be obtained only by the central authority (king, duke, "state") by levying taxes on the people, which thus divided the responsibility for conducting wars between the fighting and the paying. Consequently, the ruler, as the

payer, became a peculiar employer who dictated the conditions of "employment" of mercenary soldiers by way of so called commissariat (England), littre de retenue (France), condotta (Italy). In order for the ruler to know for what and to whom he paid (the number and efficiency of troops) it was necessary to count the number of troops and provide them with necessary materials, which, in turn caused the creation of complex organisational and administration. *Historia sztuki wojennej. Od czasów starożytności do czasów współczesnych*, ed. G. Parker. Warszawa 2008, pp. 115-116.

[19] H. Izdebski, M. Kulesza, op. cit., p. 110.

[20] Z. Duniewska, B. Jaworska-Dębska, R. Michalska-Badziak i inni op. cit., s. 17.

[21] H. Izdebski, M. Kulesza, op. cit., s. 110–112.

[22] Z. Niewiadomski, op. cit., s. 42–43.

[23] H. Izdebski, M. Kulesza, op. cit., s. 113.

[24] Ibidem, pp. 99–115.

[25] For example, foreign affairs administration includes the issues constituting the object of international relations, i.e. the ones in which there exist foreign entities; they may be foreign state bodies, their citizens, bodies and members of international organisations, and also Polish citizens abroad. These administrative tasks are performed by different bodies and institutions and the whole is overseen by the President of the Republic of Poland and the minister of foreign affairs. *Prawo administracyjne,* ed. M. Wierzbowski. Warszawa 2002, p. 626. For example, customs administration – a semantically broader synonym of the notion of the Customs Service – used interchangeably. It consists of uniformed formations, i.e. the Customs Service and the Civil Service employees. It is a part of non-consolidated administration. K. Raczkowski, *Zarządzanie wiedzą w administracji celnej w systemie bezpieczeństwa ekonomiczno-społecznego.* Warszawa 2010, p. 11.

[26] Quoted after: Z. Duniewska, B. Jaworska-Dębska, R. Michalska-Badziak *et alli* op. cit., p. 16.

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[28] The substantive law includes in its scope the legal norms contained in the commonly applicable – concerning all types of public administration branches – administrative law regulations which define the rights and obligations of the addressees of these norms. Z. Duniewska, B. Jaworska-Dębska, R. Michalska-Badziak *et alli* op. cit., p. 31. Attempts to systematise the law in national security are undertaken by, among others, W. Kitler in *Bezpieczeństwo narodowe. Podstawowe kategorie. Uwarunkowania. System.* Warszawa 2012.

[29] J.S. Langrod, *Administracja obrony państwa w zarysie*, op. cit., p. 81.

[30] *Słownik terminów z zakresu bezpieczeństwa narodowego*, ed. B. Balcerowicz i J. Pawłowski. Warszawa 2002, p. 8.

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[33] E. Ura, E. Ura, *Prawo administracyjne*. Warszawa 2000, p. 345, and also E. Ura, *Prawne zagadnienia bezpieczeństwa państwa*. Rzeszów 1988, p. 92.
[34] JoL of 1999 no 141, item 943.
[35] M. Krauze, *Rola i miejsce prawa obronnego w systemie bezpieczeństwa morskiego państwa.* Zeszyty Naukowe Akademii Marynarki Wojennej, ROK LII No 2 (185) 2011, pp. 107-122.
[36] Many authors expands the notion of defence with the notion of protection. C. Rutkowski is of different opinion and in the title *Sieć bezpieczeństwa. Domeny, relacje, dylematy i szanse* offers the decomposition of the area of defence, as one of the domains of national development, in accordance with the criterion of the character of own activity and distinguishes three types of own activities: protection, defence and security shaping. Protection and defence refer to the reaction and response to the changes in the environment, while security shaping reflects the field of our activity (pp. 114-115). In chapter „Bezpieczeństwo cywilne a obrona cywilna" (p. 208), he states that "defence expanded with protection and shaping – ceases to be defence", "the essence of the problem is not settling the issue "protection or defence", but how much and what kind of defence, and how much and what kind of protection is needed at the same time" (p. 22).
[37] *Słownik terminów z zakresu bezpieczeństwa narodowego*, ed. J. Kaczmarek, W. Łepkowski, B. Zdrodowski. Warszawa 2008.
[38] W. Kitler, *Obrona narodowa w wybranych państwach demokratycznych*. Warszawa 2001, p. 52.
[39] Ibidem, p. 62. Cf.: W. Kitler, *Obrona cywilna – szerokie podejścia do problematyki cywilnej w obronnie narodowej* [in:] *Obrona cywilna (niemilitarna) w obronie narodowej III RP*, ed. W. Kitler. Warszawa 2001, p. 26. W. Kitler claims that "identifying national security only with security with reference to military threats, usually led to a one-sided construction of the state in the area of defence. […] it is impossible to separate military and non-military threats, mainly because they occur simultaneously, complement each other and usually one leads to another and the other way round. It is impossible to separate in an artificial way times of peace, crisis and war, or the state activity for times of war and the activity for times of natural disasters and other non-conflict events" and S. Koziej, *Bezpieczeństwo ponad resortami*, „Rzeczpospolita", http://www.rzeczpospolita.pl, the issue of 26 July 2005 "what is necessary is the approach treating comprehensively all dimensions of security: external, internal, civilian and military; peacetime, crisis and war. It must be one system which only works differently depending on [occuring] threats".
[40] JoL of1999 no 141, item 943.
[41] *Słownik podstawowych terminów dotyczących bezpieczeństwa państwa.* Warszawa 1994. Quoted after: B. Balcerowicz, op. cit., pp. 80 and 81.
[42] M. Lutostański, *Prawo a bezpieczeństwo narodu i państwa*. Łódź-Warszawa 2011, p. 38. According to the author, so defined national defence coincides with the interpretation of this notion by literature from the scope of Administrative Law.
[43] *Leksykon wiedzy wojskowej.* Warszawa 1979, p. 331.
[44] T. Lesko, *Zarys prawa wojskowego. Cz 1. Wstęp do nauki prawa wojskowego.*

Warszawa 1973, pp. 154-155. In scientific monographs in order to refer to regulations concerning armed combat there are interchangeably used the following terms: the military law and the law of war. After World War II the term the law of armed conflicts came into use. Nowadays to emphasise the international character of norms and their main aims, i.e. solving humanitarian problems arising from military conflicts, the term international humanitarian law of armed conflicts is used, or its working version - humanitarian law. Humanitarian law (the law of war) constitutes the norms of international law which regulate the issues connected with war (armed conflict), such as: effects of starting a war, the area of war, the place (theatre) of war activity, the means of waging a war and the ways of harming the opponent in the war on land, sea and in the air, military occupation, legal situation of prisoners of war, treatment of the ill and injured as well as civilian population, and also neutrality of a state. Cf.: M. Gąska, A. Ciupiński, *Międzynarodowe prawo konfliktów zbrojnych. Wybrane problemy*, Warszawa 2001, p. 22. F. de Mulinen is of different opinion as he states that "*since the armed forces are created, organised and trained in order to conduct military activity, it should be considered advisable to use the term, destined specially for that purpose, the "law of war"*. The term the law of war is immediately understood and shorter than the term "law of armed conflicts", and the term "humanitarian law" requires explaining and is too often confused with the term "human rights". Cf.: F. de Mulinen, *Podręcznik prawa wojennego dla sił zbrojnych.* Warszawa 1994, pp. 17-24.

[45] M. Łukasiewicz, *Wojskowe prawo administracyjne i wojskowe postępowanie administracyjne (próba definicji).* „Wojskowy Przegląd Prawniczy" 1978, no 4, p. 425.

[46] T. Leśko, M. Szadkowski, *Prawo wojskowe PRL. Vol. 1.* Warszawa 1985, p. 15. Of course, according to the authors, in reference literature there is agreement that military administrative law does not constitute a separate branch of law, but is an integral part of the administrative law.

[47] According to M. Kuliczkowski, "in the current legal and functional circumstances, defence preparations carried out by public administration and entrepreneurs cause a lot of problems and controversy […] the costs borne by entrepreneurs, the necessity to organise in companies the classified information protection system and sometimes negative social attitude do not encourage them to participate in this process". *Administracja publiczna i przedsiębiorcy w obszarze pozamilitarnych przygotowań obronnych państwa*, ed. M. Kuliczkowski. Warszawa 2011, pp. 6-7.

[48] I mean: the Constitution of the Republic of Poland of 2 April 1997 (JoL of 1997 no 78, item 483), the Act of 21 November 1967 on general defence obligation of the Republic of Poland (JoL of 2004 no 241, item 2416, consolidated version), the Act of 4 September 1997 on government administration branches (JoL of 1997 no 141, item 943 with subsequent amendments), the Act of 23 August 2001 on organisation of state defence tasks by entrepreneurs (JoL of 2001 no 122, item 1320, with subsequent amendments), the ordinance of the Council of Ministers of 13 January 2004 on general principles of performing general defence obligation tasks (JoL of 2004 no 16, item 152), the

ordinance of the Council of Ministers of 15 June 2004 on conditions and mode of planning and financing of tasks in the scope of state defence preparations by government administration and local government bodies (JoL of 2004 no 152, item 1599).

[49] W. Kitler, *Samorząd terytorialny w obronie narodowej Rzeczypospolitej Polskiej.* Warszawa 2005, p. 20, and: *Zadania obronne samorządu terytorialnego. Materiał studyjny*, ed. W. Kitler. Warszawa 2006, p. 19. Cf.: Górski, *Wybrane aspekty planowania obronnego w podsystemie pozamilitarnym*, Informator 6(7)/2002, Biuro Spraw Obronnych MSWiA, Warszawa 2002, p. 4. *Kształtowanie się systemu planowania obronnego w kontekście pozamilitarnych przygotowań obronnych*, ed. J. Kownacki. Warszawa 2004.

[50] More on national security tasks cf. *Współdziałanie administracji wojskowej i cywilnej w zakresie bezpieczeństwa narodowego. Wybrane problemy*, ed. R. Szynowski. Warszawa 2008.

[51] JoL of 1997 no 78, item 483.

[52] Pursuant to Article 18(3) of the Act on general defence obligation.

[53] *Prawo administracyjne*, ed. M. Wierzbowski, op. cit., p. 618.

[54] Definition repeated in resolution no 67 of the Council of Ministers of 9 April 2013 on the adoption of "The Strategy of Development of the National Security System of the Republic of Poland 2022", Monitor Polski, Warszawa, 16 May 2013, item 377.

[55] W. Kitler, *Obrona narodowa w wybranych państwach…,* op. cit., p. 62. Cf.: W. Kitler, *Obrona cywilna – szerokie podejścia do problematyki cywilnej w obronnie narodowej* [in:] *Obrona cywilna (niemilitarna) w obronie narodowej III RP*, ed. W. Kitler. Warszawa 2001, p. 26. W. Kitler stated that "identifying national security only with the security referring to military threats, usually leads to a one-sided construction of the state in the area of defence. […] it is impossible to separate military and non-military threats, mainly because they occur simultaneously, complement each other and usually one leads to another and the other way round. It is impossible to separate in an artificial way times of peace, crisis and war, or the state activity for times of war and the activity for times of natural disasters and other non-conflict events" and S. Koziej, Bezpieczeństwo ponad resortami, „Rzeczpospolita", http://www.rzeczpospolita.pl, the issue of 26 July 2005 "what is necessary is the approach treating comprehensively all dimensions of security: external, internal, civilian and military; peacetime, crisis and war. It must be one system which only works differently depending on threats".

[56] M. Lutostański, *Prawo a bezpieczeństwo narodu i państwa*, op. cit., p. 32.

[57] On the basis of the analysis of available literature it is difficult to unambiguously define tasks in the scope of national security since, for example, they refer to different domains (government administration branches), as it was stated in the National Security Strategy of 2007. More on tasks in the scope of national security cf. *Współdziałanie administracji wojskowej i cywilnej w zakresie bezpieczeństwa narodowego. Wybrane problemy*, ed. R. Szynowski. Warszawa 2008.

[58] Lutostański, *Prawo a bezpieczeństwo …,* op. cit., *pp*. 216-217.

[59] Ibidem, p. 23.

[60] W. Kitel in *Bezpieczeństwo narodowe. Podstawowe kategorie. Uwarunkowania. System.* Warszawa 2012, p. 98.
[61] Ibidem, pp. 95-127. Cf.: also *Aspekty prawne bezpieczeństwa narodowego*, sc. ed. W. Kitler, M. Czuryk, M. Karpiuk. Warszawa 2013.
[62] *Prawo administracyjne*, ed. M. Wierzbowski, op. cit., p. 601.
[63] W. Kawka, *Policja w ujęciu historycznym i współczesnym*, Wilno 1935, p. 46, Quoted after: *Prawo administracyjne*, ed. M. Wierzbowski, op. cit., p. 602.
[64] Classification adopted after J. Wojnarowski, *Gotowość systemu bezpieczeństwa narodowego.* Warszawa 2010, pp. 21-22.
[65] In accordance with *Słownik terminów*…, B. Balcerowicz, op. cit., p. 80, the term "national defence" is rightly associated with defence against all possible threats, not only the military ones which, as is well known, are the object of the National Defence Ministry. The Ministry whose main tasks is to prepare the armed forces to armed combat during a war would rather have to be called, e.g. "The Ministry of Military Affairs".