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Supply Chain Management

Postgraduate Dissertation

Sustainable Procurement in the Greek Army

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Patras, Greece, June 2023

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## Sustainable Procurement in the Greek Army

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## **Abstract**

Procurement in the Greek Army is a significant and yet understudied phenomenon. The last decades, the implementation of sustainable practices in the procurement processes of organizations has been given a great attention, so that the Army was “forced” to adapt its procurement practices in these changes, in order to meet the requirements, created by the Greek alliances, such as NATO. In this research, are going to be represented the applications of sustainability in the field of military procurement, among a series of actions and regulations that have been established. Moreover, is going to be studied the relationship of the personnel, employed in position in the procurement sector, with the implementation of sustainability, as well as the perception of the personnel regarding the three dimensions of sustainability and their application in the procurement in the Greek Army. The analysis of these questions is going to reveal that the role of sustainability becomes second in line when someone has to deal with the accomplishment of the operational readiness. Also, from the findings it could also be inferred that the technology, the innovation and the quality of the processes adopted by the Army are subject to great improvement due to the outdated framework in which it works, while is particularly emphasized the staff’s lack of culture in matters of environmental sustainability. As well as, the research identifies that the social sustainability issues have a positive impact and beneficial measures have been taken in recent years to facilitate the personnel working in the Greek Army. The need for further training of the staff, in order to achieve their awareness in sustainability issues is also emphasized in the research. Finally, at the end of this dissertation, the limitations followed by the scope for further research have also been presented.

## **Keywords**

Procurement, sustainability, Greek Army

## Η βιωσιμότητα στις προμήθειες στον Ελληνικό Στρατό

Χαρίκλεια Παπαπαναγιώτου

### Περίληψη

Οι προμήθειες στον Ελληνικό Στρατό είναι ένα σημαντικό και παρόλα αυτά ανεπαρκώς μελετημένο φαινόμενο. Τις τελευταίες δεκαετίες, έχει δοθεί μεγάλη προσοχή στην εφαρμογή βιώσιμων πρακτικών στις διαδικασίες προμηθειών των οργανισμών, έτσι ώστε ο Στρατός «αναγκάστηκε» να προσαρμόσει τις πρακτικές προμηθειών του σε αυτές τις αλλαγές, προκειμένου να ανταποκριθεί στις απαιτήσεις που δημιούργησαν οι ελληνικές συμμαχίες, όπως το NATO. Στην παρούσα έρευνα πρόκειται να αναπαρασταθούν οι εφαρμογές της βιωσιμότητας στον τομέα των στρατιωτικών προμηθειών, μεταξύ μιας σειράς δράσεων και κανονισμών που έχουν θεσπιστεί. Επιπλέον, θα μελετηθεί η σχέση του προσωπικού, που απασχολείται σε θέσεις στον τομέα των προμηθειών, με την εφαρμογή της βιωσιμότητας, καθώς και η αντίληψη του προσωπικού σχετικά με τις τρεις διαστάσεις της βιωσιμότητας και την εφαρμογή τους στις προμήθειες στον Ελληνικό Στρατό. Η ανάλυση αυτών των ερωτημάτων πρόκειται να αποκαλύψει ότι ο ρόλος της βιωσιμότητας έρχεται δεύτερος στη σειρά όταν κάποιος πρέπει να ασχοληθεί με την επίτευξη της επιχειρησιακής ετοιμότητας. Επίσης, από τα ευρήματα μπορεί επίσης να συναχθεί ότι η τεχνολογία, η καινοτομία και η ποιότητα των διαδικασιών που υιοθετεί ο Στρατός υπόκεινται σε μεγάλη βελτίωση λόγω του απαρχαιωμένου πλαισίου στο οποίο λειτουργεί, ενώ τονίζεται ιδιαίτερα η έλλειψη κουλτούρας του προσωπικού, σε θέματα περιβαλλοντικής βιωσιμότητας. Επίσης, η έρευνα εντοπίζει ότι τα θέματα κοινωνικής βιωσιμότητας έχουν θετικό αντίκτυπο και έχουν ληφθεί ευεργετικά μέτρα τα τελευταία χρόνια για τη διευκόλυνση του προσωπικού που εργάζεται στον Ελληνικό Στρατό. Στην έρευνα τονίζεται και η ανάγκη περαιτέρω εκπαίδευσης του προσωπικού, προκειμένου να επιτευχθεί η ευαισθητοποίησή του σε θέματα βιωσιμότητας. Στο τέλος της παρούσας διπλωματικής εργασίας, παρουσιάζονται επίσης οι περιορισμοί που ακολούθησε το πεδίο για περαιτέρω έρευνα.

**Λέξεις – Κλειδιά**

Προμήθειες, βιωσιμότητα, Ελληνικός Στρατός

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## List of Abbreviations & Acronyms

AC	Administrative Care
AF	Armed Forces
AFS	Armed Forces Specifications
AGS	Army's General Staff
CADF	Corporate Agreed on the Development Framework
CoCGS	Council of the Chiefs of General Staff
DWM	Department of War Materiel
EMAS	Eco-Management and Audit Scheme
ESIF	European Structural and Investment Funds
EU	European Union
GDDIA	General Directorate for Defense Investments and Armaments
HNDGS	Hellenic National Defense General Staff
MF	Military Factory
MoND	Ministry of National Defense
NATO	North Atlantic Treaty Organization
NCB	National Codification Bureau
NSN	NATO Stock Number
RFP	Request for Proposal
WM	War Materiel
UN	United Nations

## 1. Introduction

The main purpose of this chapter is to provide a brief introduction of the information and data discussed in this research. In this chapter, will be presented the background and the context of the research. Later it goes on to emphasize the aims and objectives of this study along with the research questions. Finally, it will be used as a guide to all the chapters followed.

### 1.1 Research background

As Carlos Mena (2018) underlines in his book “Leading Procurement Strategy”, procurement is being an underestimated sector in the leading strategy of companies. It is usually attached into others sectors such the economy sector and does not play a strategic role in the planning of the financial policy of a private organization.

The later years due to the Covid pandemic and the overall crisis in the global economy, the strategic value of the procurement development has been recognized, forcing organizations to understand that the procurement decisions influence the business continuity in terms of sustainability, resilience, innovation and quality, preventing from potential risks. (Mena et al., 2018) Not only that, procurement professionals have to carry the heavy burden of implementing sustainable procurement effectively, fact that will alter dramatically the markets and will change the purchasing behaviors. (Schooner et al., 2020)

While private organizations recognized the need for change and adaptation in the new rules of the market, what happens with the public procurement is in a big question. The critical issue of how public organizations behave and act in relation to economic, environmental and social sustainability, lacks thorough research. This is a phenomenon, caused by the fact that sustainable management can be related to sustainability performance, but not to the overall organizational performance. (Enticott et al., 2008) However, this is not a restraint for the importance of implementing sustainable practices. Surely, public procurement has undergone a huge global revolution in public debate. (Butler, 2017)

What is most noticed is that the private sector present sustainable development, in order to maximize the profit and require the economic advantage, otherwise the public sector, which is the employer and provider of services and at the same time the consumer of the resources

(Kaur et al., 2019) is the one responsible to promote national and international progress towards sustainable development. (Kaur et al., 2019) The last twenty years, because of arising issues which refers to environmental pollution, discriminations in the public organizations etc., there is a global pressure so that all governments improve their sustainable performance. So, as it is reflected, the governments adopt such policies to all areas, such health, education, social welfare. Of course, the defense sector is not an area that has been excluded from such practices. (Adams et al., 2014)

This research will indulge in the defense sector, which is a part of the public procurement society, as it operates in the same way, by acquiring goods, works and services of civil application. Specifically, the research on the defense procurement, as far as it concerns the Greek Army, is a field that remains far behind the curve. In the next chapters there will be a primary effort to enlighten this field at the level we are allowed due to the necessity of securing classified information. The data that will be presented concern the general operating framework of the defense procurement, which is based on NATO standards, as Greece has been an active member since 1952, with a parallel presentation of sustainable practices.

Some things that were considered, while conducting this research is firstly that principles that exist in the commercial and non-defense environments play a significant role in the context of operation of defense procurement, and secondly that defense situations have unique requirements and that specific knowledge, skills and experience is needed to ensure that the procurement strategies will be implemented effectively and efficiently. (Smith, 2018)

## **1.2 Aim and Objective**

The central aim of this research is to ascertain and record the level of knowledge of the personnel of the Greek Army, who are employed in procurement management positions, on sustainability issues, as well as the level of conscientiousness regarding the application of sustainability practices in procurement.

In addition, we will try to record as much as possible applications of sustainability in the field of procurement and also to formulate different opinions and proposals for the future of the Army in matters of sustainability in procurement.

The research questions of this study are:

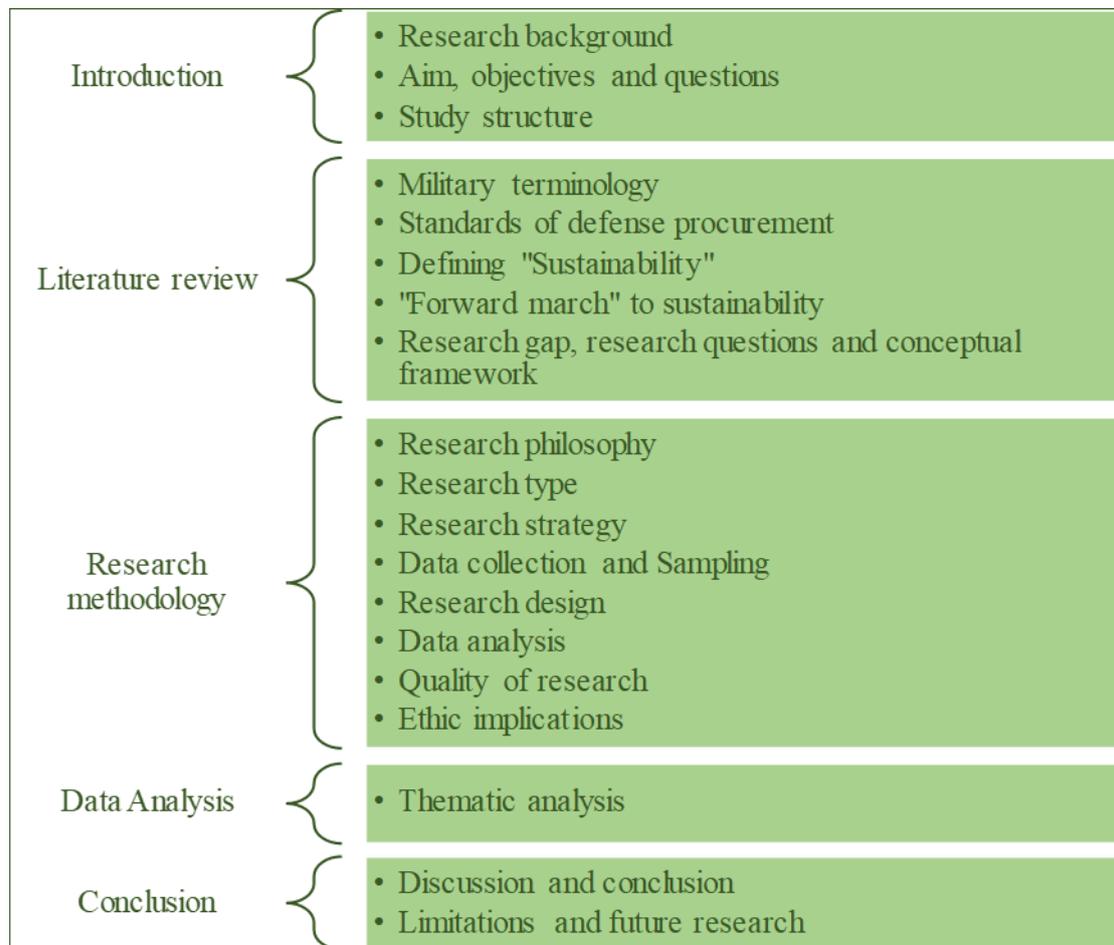
- What are the competences and experience of the personnel interviewed in matters of procurement?
- What is the relationship of the personnel with the implementation of sustainability in procurement in the Greek Army?
- What is the perception of the personnel regarding the implementation of economic sustainability and what could be improved in relation to it?
- What is the perception of the personnel regarding the implementation of environmental sustainability and what could be improved in relation to it?
- What is the perception of the personnel regarding the implementation of social sustainability and what could be improved in relation to it?
- What is the awareness of the personnel upon sustainability issues?

This research starts off by analyzing and identifying some basic concepts used in military terminology as well as the framework upon which the design of the military procurement function is based. This will act as the base for further evaluation of the application of the above in the Greek Army.

### **1.3 Structure of research**

This research consists of five major chapters as illustrated in Figure 1.1. The first chapter provides an introduction to the research. It begins by indicating the field on which the research is being conducted and it also provides the aim, objectives and research questions of the dissertation. The second chapter analyzes the literature review which contains the identification of basic terminologies, the standards upon the defense procurement is structured in comparison to the NATO standards and additionally, the different practices that the Greek Army adopts regarding the implementation of sustainability in procurement. Chapter three refers to the research methodology used in this dissertation. It contains the research philosophies, types and strategies used for collecting data. Subsequently, in the fourth chapter will be provided the findings of the research summarized in categories and individual departments. Finally, in chapter five there will be analyzed the outcome of the

whole research and will be established implications, limitations and recommendations for future research as well.



**Figure 1.1 Structure of this research (Source: Author)**

## 2. Literature review

### 2.1 Introduction

This chapter's objective is to critically discuss the literature related to this dissertation. The literature is collected from the university's library database, the NATO's library, google scholar and data available from the Greek Ministry of National Defense (MoND), which are free of classified information. Firstly, this section enables the reader to understand key military definitions that will help them move seamlessly through the research analysis and understand the research context. Then it will be analyzed in the most comprehensible way possible, the mode of operation of the procedure followed for procurement in the Greek Army and the standards on which this procedure is based.

Moreover, the definition of sustainability will be analyzed and how it is applied in the public sector, of which defense procurement is a part. Finally, different applications of sustainability in defense procurement, in all its three manifestations, in the Greek Army will be presented and concrete examples of its implementation will be given.

### 2.2 Military terminology

#### 2.2.1 Structure of the Ministry of National Defense

The detailed organization of the Ministry of National Defense is determined by the Law 2292/1995 (OGG A 35) (including some possible modifications). It consists of General Staffs of the three Services of the country (Army, Navy, Air Force). The two main branches of the Army are Arms and Corps.

“Arms” are the elements of the Army, whose main mission is to conduct the fight or directly participate in it. These are:

- Combat: Infantry, Cavalry-Armored and Artillery.
- Combat Support: Engineering, Transportation and Army Aviation.

“Corps” are the elements of the Army that provide administrative or logistical support. These are:

- Combat Support: Technical, Supply and Transport, War Materiel, Research-Information and Medical
- Other Corps: Economic, Geographical etc.

### **2.2.2 Materiel – Classes of Supply**

The term “materiel” covers the equipment in the wider spectrum of the term and includes aircraft, ships, submarines, weapon systems, vehicles and communication equipment, as well as ammunition, fuel, foodstuffs, drugs and other medical supplies etc. (Smith, 2018)

“Supply” involves acquiring, managing, receiving, storing and issuing all classes of supply except medical material, including repair parts peculiar to medical equipment. (Wade, 2005)

In addition to the general considerations that apply to most classes of supply, there are specific considerations for each commodity. The Greek Army divides supply into five classes for administrative and management purposes:

- Class I: Subsistence, gratuitous health and comfort items (supplies for food preparation)
- Class II: Clothing, individual equipment, tentage, organizational tool sets and kits, hand tools, administrative and housekeeping supplies and equipment
- Class III: Petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquids and gases, bulk chemical products, coolants, deicer and antifreeze compounds, components and additives of petroleum products, and coal
- Class IV: Construction materials including installed equipment, and all fortification and barrier materials
- Class V: Ammunition of all types, bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and associated items.

Within this broad definition, this dissertation is going to be based on the section of procurement, which deals with war materiel of Class II and V.

### 2.2.3 General Responsibilities of the Material Warfare Corps

The Department of the Army's General Staff (AGS) that deals with the materiel of Class II and V is the Department of War Materiel (DWM). In its responsibilities is to:

- Advise the AGS on matters of responsibility for War Materiel (WM) while at the same time planning the budget and checking the correct implementation of the Administrative Care (AC) of the DWM.
- Study, monitor and plan with documented recommendations on subjects:
  - Computerized applications of materials and munitions, checking their operation, in relation to AC requirements and makes recommendations on issues of maintenance - expansion and further development of these.
  - Competence budget of WM.
  - Material procurement planning responsibility of the DWM.
  - National representatives in the Interstate Support Committees of WM.
  - Accounting arrangements – write-offs of materials and ammunition.
  - Special administrative inspections in Units - Sub-Units of the DWM.
  - Collections of information on the existing and ongoing material under the responsibility of the DWM, as well as the applied principles and methods of its maintenance and repair.
  - Compilation of technical specifications for basic and special material under the responsibility of the DWM.
  - Monitoring the level of stocks with special priority on the timely acquisition of "critical" materials.
  - Technical Instructions for ammunition.
  - Monitoring of technological developments in ammunition matters.

### 2.2.4 Defense Procurement

Defense Procurement within the Greek borders, could be defined as the section of public procurement that performs for the benefit of the Armed Forces (AF) of Greece. Defense procurement therefore covers a wide scope of activities, ranging from the development and

production of complex military equipment to the purchase of food and clothing for soldiers in the field. (Heuninckx, 2017)

Defense procurement activities plays a significant role in the security of the Greek state and therefore are very sensitive, touching the core sovereign competences of the state. Also, it has an important economic impact in the financial budget of the Army's General Staff. As shown in Figure 2.1, after the expenditures for the Army's personnel, which covers the biggest amount of the overall expenses for year 2023, 86,51% (1.438.319.000€), follows the expenditures that has to do with the procurement equipment, at the percentage of 7,06% (117.096.000€).

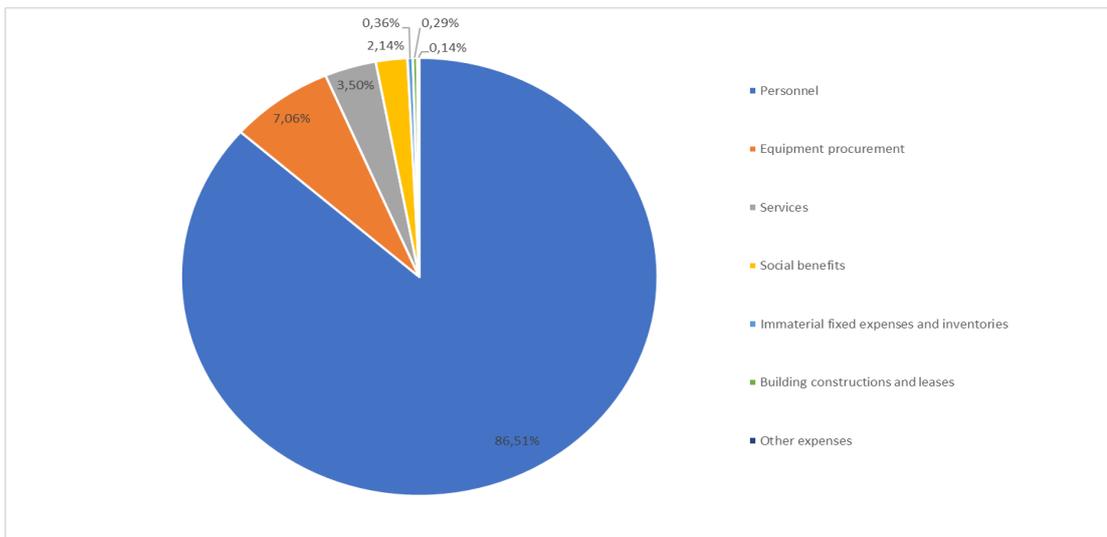


Figure 2.1 Defense expenditures for year 2023 (Source: Greek MoND, 2022)

### 2.2.5 General Directorate for Defense Investments and Armaments (GDDIA)

The General Directorate for Defense Investments and Armaments (GDDIA), set up by provisions of Article 72 of Law. 3433/2006 “Armed Forces Defense Materiel Procurement”, is responsible for planning and implementation of decisions on matters of Defense Programs and Contracts Procurement of major or other material Armament Programs, Contracts Offset (offsets), Quality Assurance and Investment Defense and Technological Research. The GDDIA composed of the following areas:

- Directorate of Defense Programs and Principal Contracts
- Directorate of Offsets and Quality Assurance

- Directorate of Defense Investment and Technological Research
- Department of International Relations
- Independent preventive audit / controls office
- Independent Legal Support Office
- Independent Office of Central Advisory Committee on Procurement
- Secretariat of General Directorate for Defense Investments and Armaments

The GDDIA is based on some institutional texts, as analyzed below:

- Law 3978/11 "Public Contracts for Projects, Services and Supplies in the Defense and Security Sectors - Harmonization with Directive 2009/81/EC - Regulation of Ministry of National Defense Issues"
- Law 3883/2010 "Service Development and Hierarchy of the Armed Forces Executives - Issues of the Administration of the Armed Forces, Conscription and related provisions"
- Law 3433/2006 "Procurement of Defense Equipment of the Armed Forces".
- Presidential Decree (PD) 73/06 "Structure of responsibilities and staffing of the General Directorates: a) Financial Planning and Support, b) Defense Equipment and Investments and c) National Defense Policy and International Relations of the Ministry of National Defense"
- PD 284/89 "Amendment, completion and compilation of Decree 785/1978 "On Procurement, Contracts and Execution of Works of the Armed Forces, (A181), as this Decree has been amended by Decree 909/981 (A231), 525/1985 (A 190) and 292/1988 (A 136).

### **2.3 Standards of defense procurement**

“National strategy is an important influence on how a defense department organizes its military forces, including the logistic units and resources required to support and sustain them, whatever the mission or task, and key to many nations’ defense strategies is membership of defensive alliances”. (Smith, 2018)

Greece is a member of the North Atlantic Treaty Organization (NATO) since 1952, so ever it follows the policies and procedures of this alliance. In this section, there will be shed a light in how, due to that strategic alliance, the defense procurement has been shaped, enabled and constrained.

NATO has established various standards and guidelines for defense procurement among its member states. These standards aim to promote interoperability, efficiency, and transparency in defense acquisition processes, and facilitate collaboration and compatibility among NATO allies. While the specific standards may evolve over time, here are some key aspects of NATO's approach to defense procurement:

- **Interoperability:** NATO emphasizes the importance of interoperability among its member nations. Interoperable defense systems, equipment, and capabilities enable effective cooperation and coordination in multinational operations. NATO encourages its member states to procure equipment and systems that meet interoperability standards, enabling seamless integration and communication with allied forces.
- **Defense Planning Process:** NATO has a structured defense planning process that member nations follow. This process includes the development of national defense plans, capability targets, and force goals. Defense procurement aligns with these plans to ensure that member states acquire the necessary capabilities to fulfill their commitments to NATO and contribute to collective defense.
- **Common Funding and Capability Targets:** NATO encourages member states to align their defense procurement efforts with common funding and capability targets. This helps to enhance collective defense capabilities and address critical capability gaps identified through NATO's capability planning and review process. By aligning procurement decisions, member nations can collectively address shared challenges and optimize resource allocation.
- **Defense Investment Pledge:** NATO member states have committed to allocating a certain percentage of their defense budgets to defense investment. This pledge, known as the NATO 2% guideline, aims to ensure that member nations devote adequate resources to defense modernization, including procurement of equipment, research and development, and infrastructure improvements.

- **Smart Defense Initiative:** NATO's Smart Defense initiative encourages member states to pool resources, expertise, and capabilities to enhance defense capabilities while optimizing costs. This approach involves cooperative projects, joint procurement, and burden-sharing among allies to achieve economies of scale and avoid duplication of efforts.
- **Defense Procurement Guidelines:** NATO provides guidelines and best practices for defense procurement to promote transparency, competition, and efficiency. These guidelines cover areas such as procurement planning, requirements definition, tendering processes, contract management, and industrial cooperation. They aim to ensure fairness, value for money, and the involvement of domestic defense industries while considering security of supply and interoperability requirements.
- **Industrial Cooperation and Defense Offsets:** NATO member states are encouraged to promote industrial cooperation and defense offsets to strengthen their defense industries. Industrial cooperation involves collaboration between nations in research, development, production, and support of defense systems. Defense offsets refer to agreements that require suppliers to invest in the purchasing country's defense industry as part of the procurement contract. (NATO, 2012)

Someone may have in mind that while NATO provides standards and guidance, each member state is responsible for its own defense procurement decisions and processes. The implementation of NATO's standards may vary depending on national laws, policies, and priorities.

The defense procurement process typically involves several stages, including:

- **Needs Assessment:** This stage involves identifying the defense requirements based on the country's security strategy, threat perception, and military doctrine. The defense authorities assess the capabilities and technologies required to address these needs.
- **Planning and Budgeting:** Once the defense requirements are determined, governments allocate funds for defense procurement in their budgets. This step involves long-term planning and prioritizing defense projects based on available resources and strategic priorities.

- Request for Proposal (RFP): Governments or military organizations issue RFPs to potential suppliers, detailing the specifications, quantity, and delivery requirements for the desired defense equipment or services. The RFP includes technical requirements, performance criteria, and other relevant information.
- Bidding and Evaluation: Suppliers submit their proposals in response to the RFP. The procurement agency evaluates the bids based on various factors such as technical capability, price, delivery schedule, past performance, and compliance with legal and regulatory requirements. The evaluation process may involve multiple rounds and may include site visits, product demonstrations, and negotiations.
- Contract Award: After the evaluation process, the procurement agency awards the contract to the selected supplier(s) based on the evaluation criteria. The contract includes terms and conditions, pricing, delivery schedule, warranties, and other relevant provisions.
- Production and Delivery: The supplier(s) commence production or procurement of the defense equipment or services as per the contract specifications. They ensure adherence to quality standards, timelines, and any specific requirements outlined in the contract. The delivery schedule is typically agreed upon in advance.
- Acceptance and Payment: Once the defense equipment or services are delivered, the procuring authority verifies the compliance with contract specifications and conducts acceptance testing. If the delivered goods or services meet the required standards, the procuring authority initiates the payment process as per the agreed terms and conditions.
- Life Cycle Support: Defense procurement often includes ongoing support and maintenance for the acquired equipment or systems throughout their operational life. This may involve spare parts provisioning, training, technical support, and system upgrades to ensure the continued effectiveness and readiness of the defense assets.

It's important to note that defense procurement can be a complex and lengthy process due to the stringent requirements, security considerations, and the need to balance cost, capability, and national interests. Governments and military organizations often have specific regulations, policies, and frameworks in place to govern their procurement

processes, ensuring transparency, fairness, and accountability. A typical purchasing or procurement cycle is shown in Figure 2.2.

The primary organization responsible for defense procurement in Greece is GDDIA, which operates under the MoND. The GDDIA oversees the entire procurement process, from needs assessment to contract management. It's worth noting that defense procurement in Greece is subject to Greek and EU regulations and directives related to public procurement, transparency, and fair competition. The process aims to ensure value for money and promote domestic defense industry capabilities whenever possible.

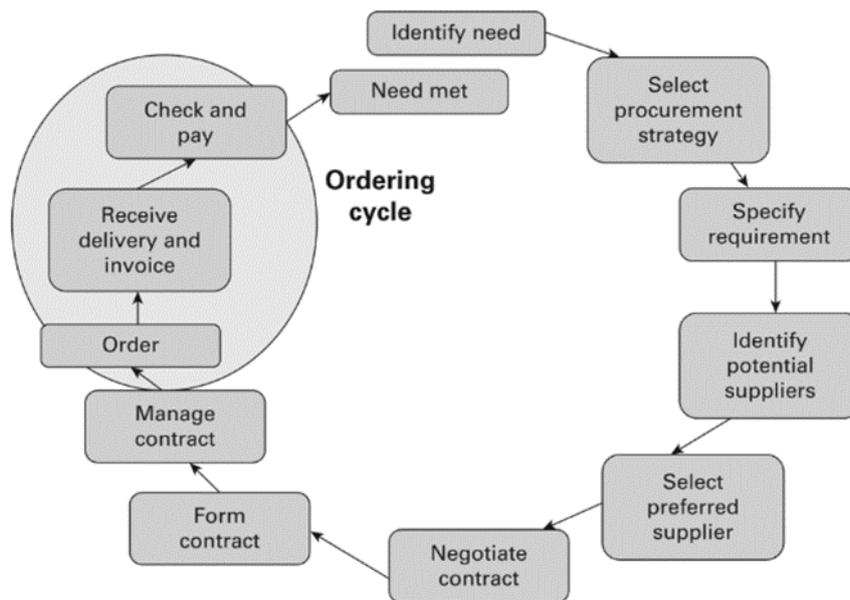


Figure 2.2 A typical purchasing or procurement cycle (Source: Smith, 2018)

## 2.4 Defining “Sustainability”

According to the definition given from the World Commission of the United Nations (UN, 1987), sustainability is described as the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

The sustainable development has three dimensions, known as 3BL, which means “triple bottom line”, and are considered as economic, environmental and social. (Mena et al., 2018) At most cases, and especially, in the private sector, the economical aspect is the one that brings together the whole interest and guides the practices of the professionals. However, due to the latest agenda of the United Nations (2020), a special attention has been paid to

the areas of human rights, labor, environment and anti-corruption, leading professionals to implement environmental and social practices in the entire supply chain and not only into the narrow limits of their organizations. (Mena et al., 2018)

In military terminology, sustainability is defined as the continuous support during all phases of operations. The personnel, engaged with support, works in order to anticipate the requirements and to synchronize provision of required supplies and services throughout operations. Also, they must effectively perform their roles, so that to sustain the operations with additional resources as long as required. (Wade, 2005)

#### **2.4.1 Factors that affect sustainability in the Army – potential risks**

Factors that affect sustainability in the Army and potential risks arising from them, are the below mentioned:

- Scope of support

It refers to the types and levels of support to provide during an operation and it is based on the type of operation, the level of hostility, time available to prepare, expected duration of the operation, and resources available. In such cases, the commanders need to manage carefully the associated risk.

- Distribution network

It consists of the information system and physical and resource network. The information system network provides the means to achieve asset visibility through the flow of information among the support elements at all levels. The physical network consists of the capabilities of the established facilities, such factories and warehouses. The resource network consists of the people, materiel and machines operating within and over physical network.

A key element is the capacity of the physical network, which can extend the sustainability. Also, if the distribution network cannot provide responsive distribution support, the commander may deal with possible risks, as for example, to increase supply stocks or to operate without robust supply stocks.

- Sources of support

The Army may have multiple sources of support, multinational, contracted or host nation. The support personnel should exploit these resources depending on the operation or the time available. Possible risks could be lack of flexibility, lower reliability or varying standards of support.

- Availability of material

Materiel is available to a force through accompanying stocks and resupply. So, it is directly related to all above mentioned factors. Enhancing resupply by improving the distribution networks or capitalizing on host-nation or locally contracted support and materiel can lessen the need to deploy and establish large stockpiles, improving sustainability. In such cases, the commander has to deal with the risk of disruptions in the distribution network. (Wade, 2005)

Analysis of these factors can lead to the selection of an appropriate procurement strategy, as shown in Figure 2.3.

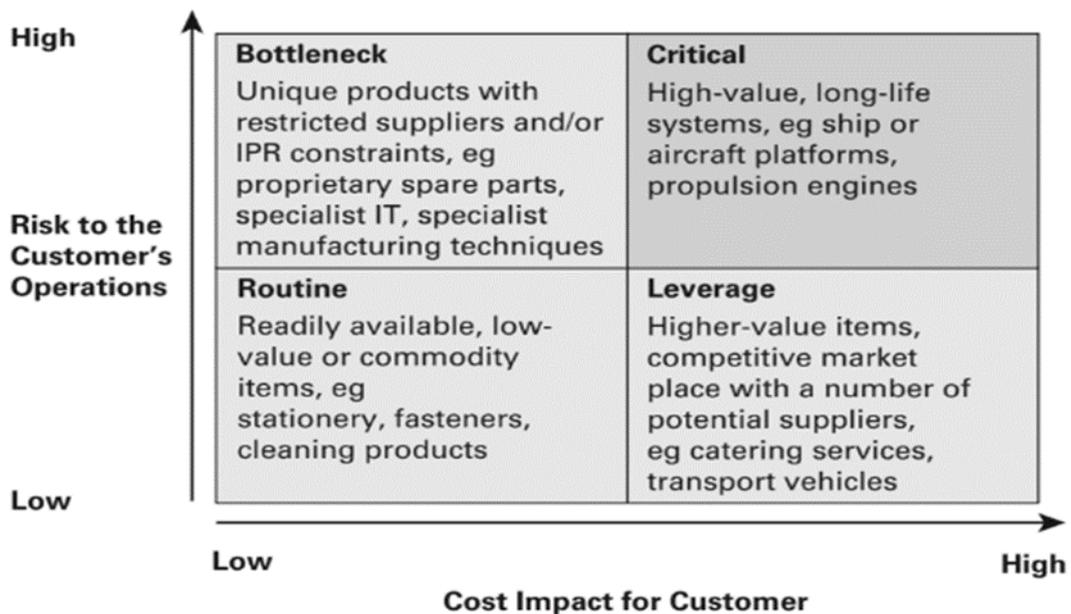


Figure 2.3 Procurement categorization matrix (Source: Smith, 2018)

#### **2.4.2 How Defense Procurement Adjusted Sustainability**

By integrating sustainability considerations into defense procurement processes, organizations can contribute to broader sustainability goals, reduce environmental and social risks, and promote responsible and ethical practices within the defense sector.

The adoption of innovative technologies and solutions improve sustainability performance. This includes seeking out technologies that are energy-efficient, resource-efficient, and have a reduced environmental impact. Research and development efforts to advance sustainability within the defense sector. The environmental impact of the procured items and their life cycle includes assessing energy efficiency, emissions reduction, waste management, and the use of environmentally friendly materials and technologies. It aims to reduce the carbon footprint, promote renewable energy, and minimize resource consumption and pollution. Additionally, life cycle assessments evaluate the environmental impacts of products and systems throughout their entire life cycle. This helps identify opportunities for improvement, such as designing products for ease of repair, reuse, and recycling.

Moreover, sustainable defense procurement takes into account social considerations, such as labor standards, human rights, and social equity. It may involve promoting fair trade, ensuring safe and ethical working conditions throughout the supply chain, and supporting local communities affected by defense procurement activities. Except that, by incorporating ethical considerations into the decision-making process, it avoids suppliers engaged in unethical practices, such as human rights abuses, corruption, or environmental violations. It may also involve promoting diversity, inclusion, and responsible business conduct.

Combined to the above mentioned, collaboration with industry partners, research institutions, and other stakeholders helps share best practices, leverage expertise, and promote sustainability throughout the defense supply chain. Partnerships with suppliers and contractors can encourage them to adopt sustainable practices and develop innovative solutions. The adherence to applicable laws, regulations, and international standards related to environmental protection, social responsibility, and ethical conduct promotes transparency in procurement processes, providing stakeholders with visibility into decision-making, criteria, and outcomes. Finally, performance measurement and reporting, thus setting measurable targets, tracking progress, and disclosing relevant information to stakeholders, enables continuous improvement and accountability.

## 2.5 “Forward march” to sustainability

Living in a country, where there is a plenty of renewable resources in combination with the physical wealth that the Greek territory offers, has raised the need for every individual to each state leadership to contribute so that the exploitation of the environmental components, which are undoubtedly important comparative advantages of Greece, to form the basis of the country's renaissance.

The Greek MoND, after the revision of the Environmental Policy of 2007, has set two goals, which are on the one hand to contribute to the wider effort of the country to implement the principles of a sustainable development and on the other hand to maximize the operational readiness of Units and staff of armed forces following modern doctrines and practices, training, support and administration care, as well as international trends, innovations and developments in research and technology. The updated Environmental Policy is based on the vision that mandates the sustainability of Greek Armed Forces and is condensed in the triptych "Fulfillment of the Mission - Protection of the Environment – Sympathy with Society" (MoND, 2014), taking into account the applicable national legislation and the corresponding Allied and Community one's guidelines and standards. It corresponds, in conclusion, to the cornerstone of developing a sustainable model evolution of the Greek Armed Forces based on a specific framework of assumptions, objectives, principles and means for undertaking appropriate targeted actions.

For the implementation of the above-mentioned Environmental Policy of the Greek MoND, which is a high priority statutory text of the Ministry, should contribute the staff of Armed Forces as a whole, presenting sense of social responsibility and consistent environmental attitude and behavior.

In relation to the above, the MoND based on the common development policy of the country, inserts in the defined development pillars its specific objectives and actions, and outlines the intended results from their application. The plan of the Sectoral Development Program of the Ministry for the years 2021-2025 was formulated amid special circumstances situations both nationally and internationally. On the one hand, they are observed continuous destabilizing actions in the wider area of the Eastern Mediterranean, on the other hand, the enormous effects caused by the covid pandemic, the geopolitical situation in Ukraine in combination with the crisis in the energy sector, which causes a recession in European and

global economy. Facts which make it imperative the full use of all development tools and resources. (MoND, 2014)

The MoND being an integral part of the central administration, recognizes the imperatives of the modern era that impose the optimum management of available resources (national and European) with the aim of economic development of the country, without the slightest disorientation from its basic goal, that of ensuring national sovereignty and integrity. The meaning of defense is the pillar of stability, without which, economic operators of the country are unable to act and through their production process to contribute to the collective well-being, growth and development of the economy.

Having as its operating basis a number of institutional texts in which describes the mission of the Ministry, the Defense Planning of the Country and the targeting of the Armed Forces, the MoND is active throughout Greece territory through its numerous units and equally populous staff that make up its ranks. The participation of the MoND in various actions of the State shows the size of its assistance in ensuring national sustainable development. (OGG B'6012/2021)

### **2.5.1 Material supply – Sustainable future**

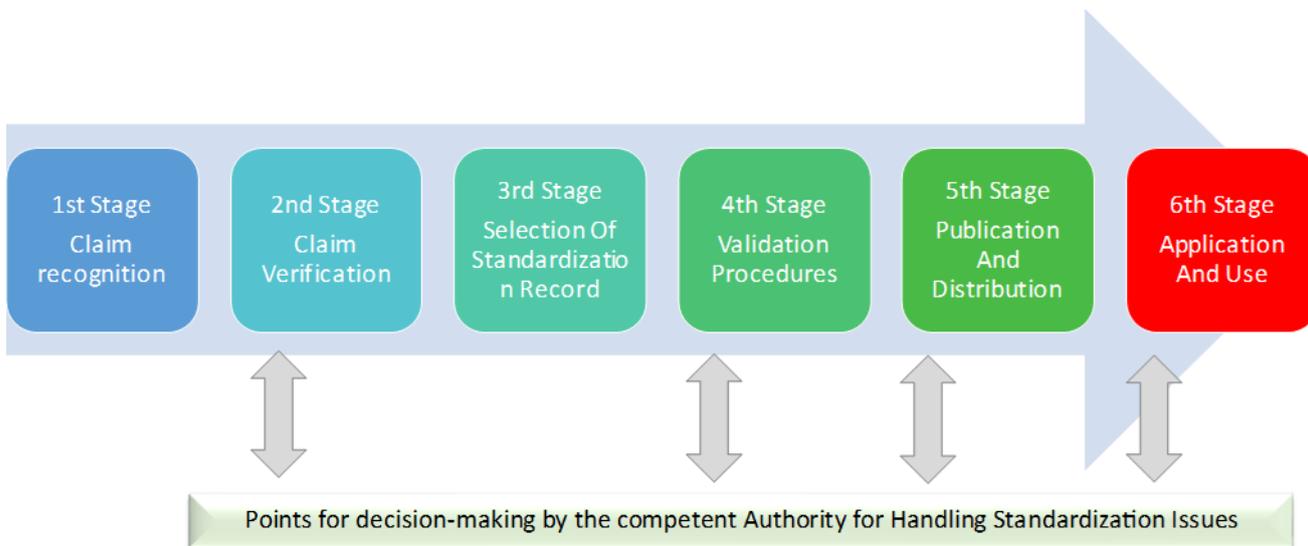
With a view to minimizing the exposure to danger of flora, fauna, soil, water resources and air from all kinds of military activities, the Army has implemented various actions, some of which are going to be analyzed below.

It would be wiser for the analysis to be carried out in a time series, starting from the beginning of the procurement procedures of the various materials until the final stage of their use, when they are extracted from the supply chain and finally their disposal.

Initially, when the military starts the procurement process of a material, in the context of the process of concluding public contracts for Supplies, Services, Projects, whether they fall in the Defense and Security sectors (Law 3978/2011), or in the other sectors (Law 4412/2016), it sets some specifications [Armed Forces Specifications (AFS)] on which it will rely in order to procure the material it needs. These specifications are determined according to official and operational needs and are issued from the time when each need arises. This procedure (Figure 2.4) is carried out in the framework of standardization in the armed forces in the areas of Administration, Operations and Material, in accordance with the existing legislation and international agreements, to enhance interoperability, of productivity and

transparency. Among the benefits of standardization are the improvement of the suitability of materials, processes and services for their intended use, and the facilitation of technological cooperation. (MoND, 2019)

The international organization that develops military standards and in which our country participates is NATO. According to Opinion No. 4 of the 22nd/28-9-2007 Council of the Chiefs of General Staff (CoCGS), the integration of the NATO Standardization into the National Standardization was determined in order to create the necessary common background, with the use of which the armed forces will be able to implement the goal of interoperability.



**Figure 2.4 Points for decision-making by the competent Authority for Handling Standardization Issues (Source: MoND, 2019)**

Subsequently, other ways by which sustainability is ensured in the Army, is also during the duration of contracts with the respective suppliers. This is carried out with what is defined in the Law 4412/2016 about Public Works, Supplies and Services Contracts. In this Law, beyond the standard procedures, the reasons for exclusion of a supplier are also defined, among which they are fraud against the financial interests of the Union, within the meaning of articles 3 and 4 of Directive (EU) 2017/1371 of the European Parliament and of the Council of 5 July 2017 regarding combating, through criminal law, fraud against financial interests of the Union (Law 198/28.07.2017), money laundering or terrorist financing, child labor and other forms of human trafficking, as defined in article 2 of Directive 2011/36/EU of the European Parliament and of the Council of April 5, 2011, to prevent and combat human trafficking and to protect its victims, if the economic operator is under bankruptcy

or has been subject to a special liquidation procedure or is in any similar procedure. (Law 4412/2016) In this way, financial stability is achieved and the smooth operation of the supply chain is ensured. Moreover, economic entities that could harm in any way the Army, as an entity and by extension the state and the EU are excluded from the proceedings.

Apart from the above, in accordance with the provisions of article 58 of Directive 2014/24/EU, the minimum criteria for selecting an economic entity are also defined. These include:

- the suitability for the exercise of the professional activity (Contracting authorities may require economic operators to be registered in one of the professional or commercial registers maintained in their Member State of establishment, as described in Annex XI of Appendix A of Law 4412/2016, or to satisfy any other requirement set out in this Annex).
- economic and financial adequacy (Contracting authorities may impose requirements to ensure that economic operators have the necessary economic and financial capacity to perform the contract. For this purpose, contracting authorities may require economic operators in particular to have a certain minimum annual turnover, including a certain minimum turnover in the field of activities covered by the contract. Also, contracting authorities may require economic operators to provide information on annual accounts, showing the ratio, in particular, of assets and liabilities. They may also require an appropriate level of occupational hazard insurance cover).
- the technical and professional ability (Contracting authorities may impose requirements to ensure that economic operators have the necessary human and technical resources and experience to perform the contract at an appropriate level of quality. Contracting authorities may require economic operators in particular to have a satisfactory level of experience, demonstrated by appropriate recommendations from contracts executed in the past. A contracting authority may consider an economic operator to lack the required professional competence if it finds that the economic operator has conflicting interests that may adversely affect the performance of the contract). (Article 78 of Law 4412/2016)

Regarding Quality Assurance Standards and Environmental Management Standards, in accordance with Article 62 of Directive 2014/24/EU, contracting authorities may require the presentation of certificates issued by independent organizations that certify that the economic operator complies with certain quality assurance standards, including accessibility for people with special needs, from quality assurance systems based on the relevant set of European standards and have certified by accredited organizations. In addition, contracting authorities may require the submission of certificates issued by independent organizations certifying that the economic operator complies with specific environmental management systems or standards, from the Union Eco-Management and Audit Scheme (EMAS) or other environmental management schemes. management that has been recognized, in accordance with article 45 of Regulation (EC) No. 1221/2009 or other environmental management standards based on corresponding European or international standards issued by accredited organizations. Contracting authorities may recognize equivalent certificates from organizations based in other Member States. (Article 82 of Law 4412/2016)

### **2.5.2 National coding system**

From the moment a material enters the supply chain, through the National Codification Bureau (NCB) that every nation, member of NATO, has implemented, each item of supply gets a single unique NATO Stock Number (NSN) (Figure 2.5) in the NATO Codification System. This satisfies the fundamental principle of a more effective supply management across the Alliance. In this way, standardization and interchangeability are promoted, the supply operations become more efficient, due to the visibility given among users into the inventories, the sharing of resources is enabled, and the equipment availability is improved, because of the fact that the users are able to track substitute parts, or alternative sources of parts, when there is shortage. Also, due to the common supply language and the fast transmittal of data, the user is able to understand the technical characteristics of an item, to minimize the risk of duplicate procurement in the inventory and benefit from economies of scale. Additionally, the user has the ability to have a better planning and budgeting of the inventory, reduce the cost of disposal and provide visibility if sources of supply. (Smith, 2018)

First part		Second part		Third part	
29		10		99	
Group: Engine Accessories		Class: Engine Fuel System Components, non-aircraft		NCB Code: 99 = United Kingdom	
				Non-significant number. Together with the NCB code, this number uniquely identifies the item.	

**Figure 2.5 The structure of the NATO Stock Number (NSN) (Source: Smith, 2018)**

### 2.5.3 Productive Army

In addition to supplies, the military also has factories for the production of raw materials. One of them is the 691 Base Industrial Factory (BIF), which is engaged in the production of medical-industrial oxygen and nitrogen, various types of paints, varnishes, plastic items, metal paint packaging boxes, soap. These products compete with their private sector counterparts even in relation to multinational companies. The financial benefit obtained by the Army from the turnover of 691 BIF, indicatively for the Year 2021, amounts to €3,400,000, approximately.

Some of the factory's distinctions in terms of environmental sustainability are the 1st Prize in the Environmental Sensitivity competition "ECOPOLIS 2018" for the work "Sanitation of Interior Spaces Using Innovative Coating", as well as its award in July 2019 as the first Unit among all Units and of the 3 branches of the Armed Forces in the institution "Friend of the Environment" AF. (MoND, 2019)

The second factory that works for the benefit of the Army is the 700 Military Factory (MF), which deals with the manufacture of clothing and footwear. The existence of the factory is very important both for the Army and for the public, as it ensures the service from the monopolies of private companies but also to cover the needs for products that are not supported by the private sector [Hellenic National Defense General Staff (HNDGS)].

It is worth noting that both factories collaborate with university institutions, in the field of research, in order to achieve a qualitative and quantitative improvement in the quality of products through innovative and efficient proposals with the aim of saving resources for the Army.

#### **2.5.4 Monitoring the procurement**

For the monitoring of all materials introduced into the supply chain, the Army has online information systems whose mission is to automate the administration and management procedures of the class II and V material of the Army. It creates a single control and management environment of the materials including all the departments of the AC system. It is an integrated information system which effectively strengthens the AC of the Army, contributing to the increase of the operational readiness of the Units and to the correct planning of the operations. The most important advantage from the completion of these informational systems is the central control of class II and V material stocks and their activation for all Units.

A very outstanding advantage that arise from monitoring the supplies is saving money. Specifically, when the manager knows where the stock is located and how much is available, then this prevents from buying unnecessary stock, avoid storage costs for overstocked materials and use materials before they become out of date. An informational system is a great tool to identify interchangeable materials in different locations on the country. Moreover, since the equipment has common parts with other existing equipment, using the already existing spares is a cost avoidance opportunity to keep the inventories from growing. (NATO, 2017) Also, the managers have a wide spectrum of the needs and are able to have a better control of the purchases and negotiate lower prices.

Another advantage is the aid logistics operations, meaning that monitoring aid cross service supply between the military units. Thus, a unit at one end of the country can supply a unit at the other end of the country, as both use the same method of locating supply items. This also saves money as redundant supply functions are expensive. Except that, the managers are in a better position to get the right parts to the right place in time, as an accurate description of materials, combined with an easy catalogue, allows them to identify the needed materials more quickly. (NATO, 2017)

Additionally, an information system allows managers to recognize whether precious metals may be embedded in a supply material, whether it is hazardous for the environment, or it has such a high value that it requires special storage procedures. They even have the ability to know if supply materials may be susceptible to harm or during storage or transportation, thus requiring special handling.

Finally, something worth to be mentioned is that, when a material is recorded with a NATO number, it can be tracked from other countries, so the international sales are promoted. Tracking a material by its NATO codification also means, that a manager can easily determine past sources of purchase, something very useful for materials that are hard to obtain and surely, tracking commercial vendors helps with tracking critical information such as past performance, contact numbers and political or social data. (NATO, 2017)

### **2.5.5 Disposal of materials**

New disposal procedures have been set for the Army's assets, which include the utilization of raw materials, which result from deletions of useless materials, the utilization of recyclable materials, such as waste electrical and electronic items, waste tires, waste batteries and waste accumulators and also the utilization of primary materials and other useless materials of all kinds, such as useless vehicles, armaments, telecommunication's materials, optical materials and their spare parts. (OGG 3760B'/2020)

These procedures have been established in such a way as to bring both economic benefits and environmental benefits to the service. First of all, if a material is to evolve from the supply chain, it should be inspected by a primary committee and then by a secondary committee, in order to transparently ensure that the specific material does not already have the necessary quality status if it is to be used operationally. Then, once the quality condition of the material is identified, then it follows a separate process depending on its nature, i.e., if it is, for example, a clothing material or a spare part.

Specifically, the clothing materials, if they are in a good quality condition, can be reused, either for distribution to personnel who are not employed in operational needs, or for the repair of other materials. Otherwise, if they are required to be disposed of, then this is done in special disposal areas for the corresponding species, in order for their environmental footprint to be the least harmful. The same procedure is followed in case of disposal of materials, such electrical and electronic, waste spare parts, tires, armaments and other, from which the resulting discarded material, such as scrap iron, are collected in special areas. In such cases, the service has provided for their utilization with economic benefit, i.e., their sale to private companies that handle this type of waste, in exchange for money. (OGG 3760B'/2020)

### 2.5.6 Social sustainability

Beyond the practices followed in the procurement process to bring economic and environmental benefits to the Army, the personnel who work in the procurement sector are equally important. The proper management of personnel plays a very important role in the smooth operation of procurement process. For this reason, various policies have been adopted for the better living of the staff in the working environment, in conjunction with the adoption of practices to facilitate the staff in personal issues of everyday life, with the aim of ensuring the most efficient work and contribution.

Fighting all forms of discrimination and providing equal opportunities to all social groups are a fundamental goal of the State and cornerstone of the Charter of Fundamental Rights of European Union (UN). This is a goal that has led the EU to undertake the financing of a number of actions within the framework of Corporate Agreed on the Development Framework (CADF) with the assistance of significant resources from European Structural and Investment Funds (ESIF).

Following the same goals, the National Development Program (NDP) finances, through national resources, actions to ensure equal opportunities and the abolition of discrimination. In the same context, NDP of MoND promotes actions in accordance with the principle of the prohibition of discrimination with its indicative development of distance learning as well as the upgrading of education and telecommunications connections to enable equal access to executives who live in remote areas or who for some reason (health, etc.) cannot participate in lifelong learning.

At the same time, in the direction of "integrating the gender dimension" attempts are being made to expand the functionality of nurseries, in the framework equalization of labor inequalities and equal professional opportunities careers between men and women

The MoND is processing the inclusion of projects in its Sectoral Development Program with a view to providing women of AF with equal access to education, in health care and decent work with full respect for the fundamental human right of gender equality. (MoND, 2021)

Indicatively, the table below shows the responsibilities assigned by the minister in the field of social development for the period 2021-2025. (Table 2.1)

SOCIAL DEVELOPMENT		
1.	Health - infrastructure, equipment	<p>Improvement of existing Health infrastructures of Military Hospitals and Units to provide correspondingly improved health services in the military personal as well as society.</p> <p>Supply of modern machinery, media and ambulances of high standards and capabilities, in context assistance of the AF in dealing with natural disasters - emergencies (e.g., floods, fires), in management of migratory flows, in conducting business search and rescue as well as general support Civil Protection actions</p>
2.	Strengthening of infrastructure for improvement of economic and social integration of Disabled	Create appropriate access to facilities and infrastructure of AF for Persons with Disabilities
3.	Social Investments	Tackling inequalities in island regions (indicatively: providing preventive medicine through mission execution of Naval Units (NU) in the island regions), support of the vulnerable population groups
4.	Training actions - employee training	Continuous training programs for executives, with their participation in various training programs and specialization in order to produce research, to innovate and operate modern technologically systems.
5.	Development and Modernization Infrastructure of all kind's education	Strengthening digital and other education infrastructures, of all the educational institutions of

		the AF, with the supply of corresponding logistical equipment, the improvement of the already existing and the construction of new infrastructures. The intended result is, on the one hand, support modern teaching methods and techniques (modern and asynchronous distance learning), and on the other hand modernization of operational education and research with use of the simulation.
6.	Infrastructure in the field of sports	Improvement and modernization of the sports facilities of AF, which are available for the benefit as the case may be of society (sports clubs, municipalities, other bodies etc.)

**Table 2.1 Responsibilities assigned by MoND in the field of social development for the period 2021-2025. (Source: MoND, 2021)**

## 2.6 Research gap, research questions and conceptual framework

This section will summarize the research gap based on literature discussed in previous sections and illustrates the research questions with the conceptual framework.

Generally, defense procurement is a subject that is not widely studied. There are some studies regarding the defense procurement of other countries, such as Canada and the United Kingdom, but there is no study regarding the defense procurement implemented in the Greek territory. Let alone, there is no study regarding the implementation of sustainable practices in the Greek Army.

The aim of this study, as represented in Section 1.2, is to explore the relationship of the personnel employed in the Army with the implementation of the sustainable practices, and

particularly the personnel employed in positions that has to do with procurement management. Also, is to be explored the perception of the personnel regarding the implementation of sustainability in all its forms in the procurement and to be stated possible suggestions of improving the management of procurement in relation to sustainability and at last, there will be examined the educational level of the personnel related to sustainability and possible suggestions will be stated regarding the amplification of their knowledge.

On the basis of the research aim and question, the conceptual framework displays below (Figure 2.6)

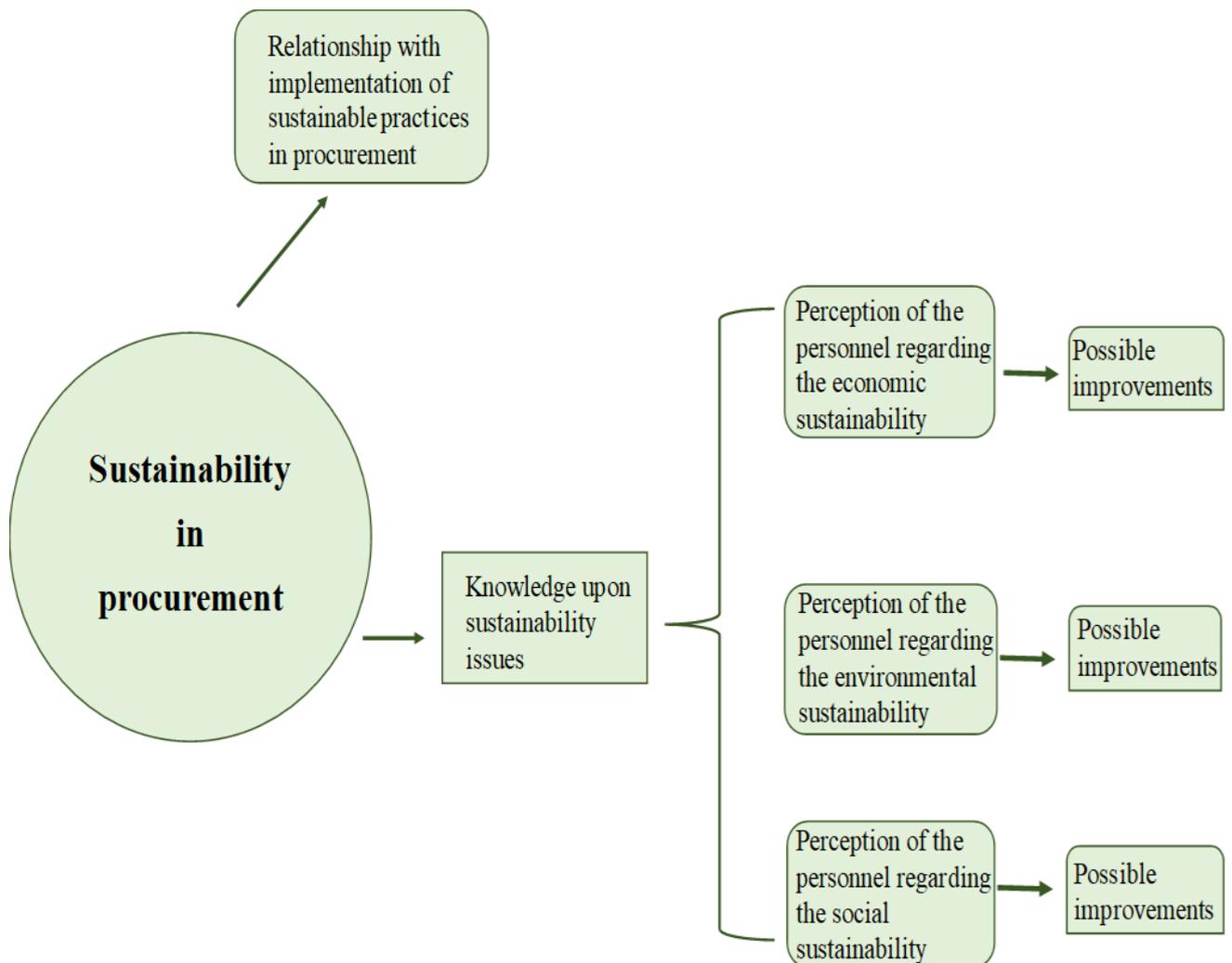


Figure 2.6 Conceptual framework (Source: Author)

## **2.7 Conclusion**

This chapter discussed literature related to this dissertation. Specifically, some specific military terminologies are introduced, there is analysis of the general responsibilities of the Department of Material Warfare Corps, from which the total of participants is derived. Consequently, is given the definition of defense procurement and the standards on which it is based on the Greek Army. Later, sustainability is defined, and the implementation of sustainability practices in the Greek Army is represented. Based on these discussions, research gap, research aim, research question and conceptual framework are displayed.

### **3. Research methodology**

#### **3.1 Introduction**

This chapter deals with the research philosophies which are identified and selected for the conducting of this research. Firstly, it will be represented the philosophy selected as the foundation of the whole study and it will be justified. Secondly, it will be established the methods of data collection and analysis. Lastly, the ethical implications will be discussed before giving the final conclusion.

#### **3.2 Research philosophy**

Research can be described as a systematic and organized effort to investigate a specific decision problem encountered, which needs solution. It comprises a series of steps that are designed and executed with the goal of finding answers to the issues that are of concern to the manager at the work environment. (Bougie and Sekaran, 2019)

Research is based on reasoning (theory) and observations (data or information). The two most distinctive research philosophies are positivism and interpretivism or phenomenology. (Cooper and Schindler, 2019) There are more theories that exist between the two of them and have characteristics from both, such as critical realism, postmodernism and pragmatism. (Saunders, 2019)

Generally, the natural sciences are the ones that use positivism as a research philosophy, mostly because of the use of objective data and the belief that observed facts are the only ones that can show the social world objectively. Following this type of research means that because the observable facts are external, the research is conducted value free. Studies of positivism approach usually single out one explanation. (Cooper and Schindler, 2019)

On the other hand, social sciences are the ones that use interpretivism as a research methodology. The supporters of this theory believe that people give meaning to the research, through the observed and interpreted social constructions. Usually, the researcher becomes a part of the research and in collaboration with the participants tries to find and implement

solutions to the problem. In such methodology, the social world is formatted from the motives and believes of people. (Cooper and Schindler, 2019)

However, in order to be able to distinguish between the different types of philosophies, someone has to consider the different assumptions that arise by each one of them. These are known as structure and agency assumptions and are ontology, epistemology and axiology. (Saunders, 2019)

Particularly, ontology refers to the assumptions made regarding the reality, thus the way the researcher sees and studies the research objects. In business and management, these objects include organizations, management, individual's working live and organizational events and artefacts. (Saunders, 2019) So, the ontology helps the researcher to choose what to research for his research project. Subsequently, epistemology deals with the knowledge and how this knowledge can be communicated to others. By knowledge, it is meant all the available data, narratives and stories. In contrary, axiology refers to the values and ethics, and how the researcher's values and ethics affect the research. Making clear what is the researcher's value position, becomes the basis for making judgements about what research he is conducting and what decisions he is making. (Saunders, 2019)

Regarding this research, the philosophy that is primarily used is interpretivism epistemology. As the main aim of the research is to know and record the level of knowledge of the personnel of the Greek Army, who are employed in procurement management positions, on sustainability issues, as well as the level of conscientiousness regarding the application of sustainability practices in procurement. Therefore, in order to find out and because the different people taking part in the research have different views, interpretivism is the most suitable philosophy, as personal logic and social interaction is necessary to ascertain the different perspectives of people.

### **3.3 Research type**

When conducting research, there are two views regarding the relationship between the theory and the research. These are deduction and induction. In the deduction approach, the conclusion that is made can be considered true, only if the premises made during the research are true. If at least one of the premises turn out to be false, then the conclusion is under dispute. (Cooper and Schindler, 2019)

Compared to the deductive argument, in induction, the relationship between the reasons and the conclusion is not as strong. To induce means to make a conclusion based on the facts available or pieces of evidence. The conclusion explains the facts. Making hypotheses during the research have some chance of being true, but in order to confirm these hypotheses, others may occur and confirmation depends on the evidence. (Cooper and Schindler, 2019)

This research adopts the inductive approach, since the theory is expected to be explained based on the observations and findings. The premises and the conclusion do not have a linear relationship, and no hypotheses can be made, because, while theoretically sustainability is universally applied to all Units, the personnel who take part in the research, serve in different Units, so the conclusion depends on the percentage of application of sustainability in each Unit, it depends on the individual himself, on the training he has receives, and from the rate of engagement with the object.

### **3.4 Research strategy**

The researcher, in order to proceed the research has to answer some questions, that will show the type of method he will use for collecting the kind of information he wants. These are the type of problem of the research, whether the study will be explorative, descriptive, causal or predictive, what is the outcome he expects to get and what kind of information he already has access to or wants to obtain. Answering these questions will show the path, whether a qualitative or quantitative method is more appropriate. (Cooper and Schindler, 2019) Of course, as their name suggests, in qualitative research the results are presented through words and in quantitative as numbers. (Patten and Newhart, 2018)

In this research, the approach that will be followed is the qualitative one. As mentioned above, the results that will arise from the research will be based on the observations and the interview responses of the participants. Due to the fact that little is known for the topic of research, the population is hard to reach and generally few theories exist, the more appropriate method is considered to be the qualitative research. (Patten and Newhart, 2018)

### **3.5 Data collection and Sampling**

In qualitative research, the data may be gathered by human observers or interviewers. (Zikmund et al., 2013) The data collection is usually obtained through unstructured interviews or direct, unstructured observations. It is possible for qualitative data to be transferred in numerical data, but there is a chance of not meeting fully the criteria used in statistical analysis. (Patten and Newhart, 2018)

Qualitative researchers use small samples of participants in their study, but tend to spend more time gathering the data, due to the unstructured interviews that include verbatim responses. The sample used is selected purposely, so they will be able to gather the information needed in order to end up in an outcome. Also, in qualitative researches, the researchers usually choose their participants from their personal background, because of their relationship with the subject of research, so that they have a more thorough picture of the opinions expressed, which may be biased. (Patten and Newhart, 2018)

The research of this dissertation will be conducted with semi-structured interviews, as the questions are rearranged but through the interview there will be the opportunity for the interviewer to ask additional questions, depending on the flow of the discussion. (Alshenqeeti, 2014) The people that will take part in the research are accounted to 6 and they are of different age, length of time in the Army, from different places in the department's hierarchy but they are all of the same specialty, i.e., they belong to the Corps of War Material but in different Units, and they all have officer ranks too.

The selection of the participants was based on the relationship of the researcher with the specific specialty. Also, all the participants are directly related to supplies to the Army and have been employed in various positions within the supply chain. Finally, they come from officer ranks, because officers are the ones who get administrative positions and have more weight in decision-making in the procurement process.

### **3.6 Research design**

Before proceeding to the interview, the researcher prepares the main structure of the interview and he may even separate the interview in parts, depending on the information desired to be collected from the participants. Although, there is an open window on adjusting

the questions according to the responses of the people interviewed. Table 3.1 has a list of all the questions alongside with their justification.

The questions are designed to provide us with the necessary data that will lead us to the main goal of the research. There are 40 questions divided into six themes. The first theme contains Demographic questions, which will provide us with information about the competences and experience of the personnel interviewed in matters of procurement. From the second theme there will be collected data about the overall relationship of the personnel with the implementation of sustainability in procurement in the Greek Army. The next three themes specialize this relationship into the three subcategories of sustainability, economic, environmental and social and possible proposals and solutions will be formulated. Finally, the last theme will examine the cognitive adequacy of the staff in sustainability issues.

<b>Theme</b>	<b>Question asked</b>	<b>Purpose of question</b>
Demographic questions	1. Gender?	These questions are designed to gain information about the participants and their competences and experience in the field of procurement
	2. Officer rank?	
	3. Further University Studies? In which subject?	
	4. What is your current position? For how many years?	
	5. How many years have you served in the Army in total?	
	6. How many years of work experience do you have in the field of your specialty?	
General questions about sustainability implementation	7. In your current position, did the term sustainability ever concern you?	These questions are designed to gain information about the relationship of personnel with the implementation of sustainability in procurement in the Greek Army
	8. Have you ever been on a decision-making group on any area of sustainability in procurement?	
	9. Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?	
	10. In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?	

Theme	Question asked	Purpose of question
	11. On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?	
	12. How much progress is there regarding the implementation of sustainability in the Army?	
Economic sustainability	13. How do you perceive economic sustainability?	These questions are designed to gain information about perception of the personnel regarding the implementation of economic sustainability and what could be improved in relation to it
	14. How do you think that the Army achieves economic sustainability?	
	15. How would you comment on the level of innovation, quality and technology used by the Army?	
	16. How can the Army combine economic sustainability with operational needs?	
	17. Do you believe procurement plays a significant role in managing the Army budget?	
	18. If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?	
Environmental sustainability	19. How do you perceive environmental sustainability?	These questions are designed to gain information about perception of the personnel regarding the implementation of environmental sustainability and what could be improved in relation to it
	20. How do you think that the Army achieves environmental sustainability?	
	21. How do you think the Army is approaching environmental challenges?	
	22. What initiatives are taken to promote greater environmental responsibility?	
	23. How is the development and spread of environmentally friendly technologies encouraged?	
	24. Do you believe that environmental responsibility is parallel and individual	

Theme	Question asked	Purpose of question
	responsibility? How would you rate yourself?	
	25.If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?	
	26.If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?	
Social sustainability	27.How do you perceive social sustainability?	These questions are designed to gain information about perception of the personnel regarding the implementation of social sustainability and what could be improved in relation to it
	28.How do you think that the Army achieves social sustainability?	
	29.Are the human rights of personnel supported and respected in the Army?	
	30.Is there any form of forced and mandatory labor in the Army?	
	31.Is there discrimination between staff in the Army about gender, age, position?	
	32.Is there any kind of corruption in the Army, including extortion and bribery?	
	33.What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?	
	34.Would the gender of someone applying for an administrative position play a role for you, if not, why?	
Adequacy of knowledge	35.Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?	These questions are designed to gain information about cognitive adequacy of the staff in sustainability issues
	36.Have you ever been trained, even in the form of simple	

Theme	Question asked	Purpose of question
	speech, on matters of implementing sustainability?	
	37. In your daily work, do you consider the implementation of sustainability?	
	38. What is your access to knowledge related to sustainability?	
	39. How could your knowledge of sustainability be improved?	
	40. Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?	

**Table 3.1 Interview themes and questions with justification (Source: Author)**

Due to the fact that the participants are Greek, the questions will be conducted in the Greek language. The interviews will take place in person and will be recorded. In cases where the participant serves in a different place of the State, the interview will be conducted through internet communication. Lastly, the recorded positions will be translated. (Bazeley, 2021)

### 3.7 Data analysis

When undertaking a qualitative analysis, there are different theoretical approaches and each approach depends on specific factors, according to the overall aims of the study. The two most distinct approaches are the Grounded theory and the Framework analysis. (Lacey and Luff, 2009)

It is important to emphasize that what distinguishes Grounded Theory from many other approaches to qualitative analysis is this emphasis on theory as the final output of research (Strauss and Corbin, 1998). Theory, in this sense, provides a set of testable propositions that help us to understand our social world more clearly, rather than an absolute ‘truths’. In this method, concepts or categories emerging from one stage of the data analysis are compared with concepts emerging from the next.

A second, more recent, approach to qualitative analysis is Framework Analysis. (Ritchie and Spencer, 1994) Framework Analysis has 5 key stages: Familiarization, Identifying a thematic framework, Indexing, Charting and Mapping and Interpretation. In summary, the analysis process is carried out in the following way: Reading and understanding the data, separating the data according to the theme (initial coding), coding the piece of data depending on the theme with numerical or textual codes, charting the data, so they can be easily read, by theme or by case, and finally, defining concepts, finding associations within the data and concluding to typologies or explanations. (Lacey and Luff, 2009)

In this research, the data derived will be transferred in writing and analyzed with the Framework analysis, based on the separated themes, as mentioned above (Table 3.1).

### **3.8 Quality of research**

Issues of validity and reliability play a significant role in the findings of a research, as they serve as guarantees of the results of the participants. (Alshenqeeti, 2014)

Specifically, there are two types of validity, internal and external. Internal validity refers to the question if the different results relate to each other and to what is supposed to be measured and in contrary, the external validity refers to the question whether the results can be generalized. Complementarily, reliability refers to the question whether the findings can be trusted, due to the high possibility of existing bias. (Alshenqeeti, 2014)

The specific research tries to maintain the validity and reliability of interviewing. The reliability is secured by describing the approach and the procedures followed for the data analysis and justifying why these are appropriate for the data analysis (Section 3.5-3.7). Also, during the analysis of the data, there will be an explanation of the process of the generating themes, concepts or theories. (Lacey and Luff, 2009)

Additionally, the data will be transferred and represented as accurate as possible, in order to secure the validity. There is an explanatory of the research design (Section 3.6), so that to ensure the validity of the questions that serve the topic, and there will be represented the background of the participants who were selected. At last, in the analysis there will be a presentation of the positions of all the participants, so that the reader to be convinced that the interpretations are related to the data gathered. (Lacey and Luff, 2009)

### **3.9 Ethic implications**

“Ethics surrounding the use of qualitative research needs to take into consideration the rigor and ethical nature of the research activities that precede use, as well as those inherently connected with decisions about the use of data and findings”. (Flick, 2014)

Before proceeding with the interview process, all the participants will be asked whether they desire to participate in the research process and will provide their informed consent. Also, all the participants will be acknowledged that the data collected will be confidential and anonymous, so that the whole interview to be conducted with openness and intimacy and the participants to not disclose information. Finally, the participation is voluntary and any participant is able to withdraw at any time. (Alshenqeeti, 2014)

### **3.10 Conclusion**

The research methodology helps identifying the logic of methods followed in order to illustrate the aim and the objectives of the research. The process starts off by identifying the research strategy that is more suitable for gathering the information desired, in which method the data will be collected and how they will be analyzed. The subjects and interview questions were presented, so that the whole research to be conducted in the basis of ethical principles.

## 4. Findings and analysis

### 4.1 Introduction

The previous chapter introduced the necessary information regarding the philosophy and strategy of this research. This chapter aims to analyze the data collected from the semi-structured interviews that were conducted to 6 people, that are employed in management positions in the defense procurement of the Greek Army. The background of the participants and other fundamental information about them, will be introduced below. Then themes and coding summarized from data will be summarized and the positions will be analyzed, in order to conclude in some findings that will answer the questions as stated in previous chapters.

### 4.2 Participants' background

This research was conducted to six people that are military officers, they are all of the same specialty, i.e., they belong to the Corps of Warfare Material but in different Units, and they all have officer ranks too. Table 4.1 illustrates the interviewees and their positions in the procurement management, fact that explains the different perspectives on the subject of research. The years of service in the military as well as the years of involvement in the specialty, play a decisive role in shaping their opinion on sustainability issues. also, the perspective of a person is different, depending on the level at which he exercises management. The rank of the interviewees is based on chronological order in which the interviews were conducted.

Interviewee	Officer rank	Position	Years of military service	Years of involvement in the specialty	Class of material that he manages
1.	Senior officer	Manager in military factory	33y	28y	Class II
2.	Junior officer	Head of supply department in expenditure materials and	12y	5y	Class II

<b>Interviewee</b>	<b>Officer rank</b>	<b>Position</b>	<b>Years of military service</b>	<b>Years of involvement in the specialty</b>	<b>Class of material that he manages</b>
		in a retail department			
3.	Senior officer	Commanding Officer at an Administrative Care Unit	26y	22y	Class V
4.	Senior officer	Head of supply department in expenditure materials	26y	15y	Class II
5.	Junior officer	Ammunition company commander	12y	7y	Class V
6.	Junior officer	Head of supply department in expenditure materials	12y	7y	Class II and V

**Table 4.1 Interviewee and background – Part I (Source: Interviews)**

Other criteria that affect the findings of the research is the gender of the participants, which differs their positions regarding the social sustainability in procurement. Also, the educational background is particularly important for the results, because sustainability is perceived differently by a person who has university knowledge in such cognitive framework. (Table 4.2)

<b>Interviewee</b>	<b>Gender</b>	<b>Year of birth</b>	<b>Education</b>
1.	Male	1965-1975	Doctorate
2.	Male	1986-1995	Postgraduate
3.	Male	1976-1985	Undergraduate
4.	Male	1976-1985	Doctorate
5.	Male	1986-1995	Undergraduate
6.	Female	1986-1995	Postgraduate

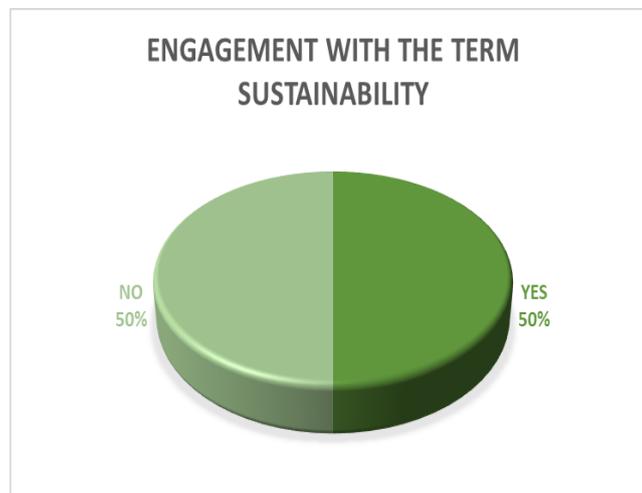
**Table 4.2 Interviewee and background – Part II (Source: Interviews)**

### 4.3 Sustainability implementation in the Greek Army

As mentioned in the literature review, sustainability has three different forms. Before exploring what are the participant's perspectives in each form, the research focuses on what is the relationship of the people with sustainability in the daily working environment. Except that, the participants express their opinions on what is most desired from the military side, the implementation of sustainability or the operational readiness of the Army.

As can be seen in the Figures 4.1 – 4.2 below, half of the participants have never been concerned with the term sustainability at work, while only 2 of the 6 seem to have participated at some point in their career in a decision-making process for some issue of implementing sustainability in procurement.

The cases are listed below:



**Figure 4.1 Engagement of the participants with the term sustainability (Source: Interviews)**

*“As Executive of AC, in my previous position, when I provided data regarding the Formation's overall needs in materials and supplies, in order to conduct the research for their purchase and supply centrally, to achieve better prices and delivery times. I did not take part in the process of making any final decision, except at the stage of submitting data and related proposals.” – Int. 4*

*“Yes, in general that decisions are to be made on various issues of everyday life (eg how we will combine the movements to receive materials from the storage base, or how we will combine movements to transport ammunition” – Int. 6*

Then, during the discussion, the topic was raised, if the operational needs are the ones that are prioritized or the implementation of sustainability in the procurement. Also, the personal opinion of each participant was expressed as to which of the two is more important (Table 4.3)

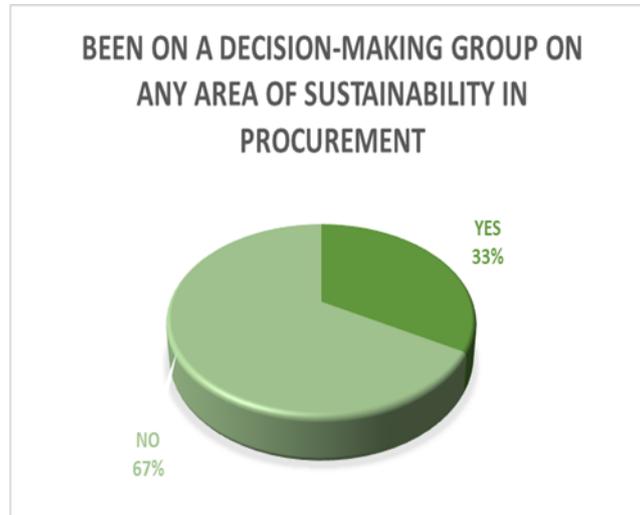


Figure 4.2 Participation of the personnel in decision – making groups regarding sustainability in procurement (Source: Interviews)

Interviewee	Operational Readiness	Sustainability	Combination under specific conditions
1.	•		
2.			•
3.			•
4.	•		
5.	•		
6.			•

Table 4.4.3 Importance according to the personal opinion of the participants (Source: Interviews)

The positions shows that the operational readiness in more important for the Army, while the combination of two would be preferred under specific conditions. As expressed,

*“Both equally, given the current stable international environment, because with sustainability we strengthen our future capabilities. If there is a period of extreme volatility from competitive adversaries that require all available government resources to counter, only then should operational needs take absolute priority.” – Int. 2*

Complementary, the general opinion stated from the participants is that the implementation of sustainability in procurement is at an early stage and needs more improvement.

#### 4.4 Economic sustainability

The general perception regarding the term of economic sustainability is placed within the same spectrum from all the participants.

*“Timely planning and forecasting of needs. In this way, the appropriate supplies, materials and means will be secured in time, at favorable prices, both due to time convenience and the size of the orders.” – Int. 3*

*“Financially growing a business (or in the case of the military achieving potential economics of scale) through innovation, efficiency, use and reuse of natural and human resources” – Int. 4*

*“An effort to save resources, among the tasks performed daily in the Army” – Int. 5*

Regarding how the Army achieves the economic sustainability, different opinions are stated (Figure 4.3), while others believe that the Army is not able to achieve it.

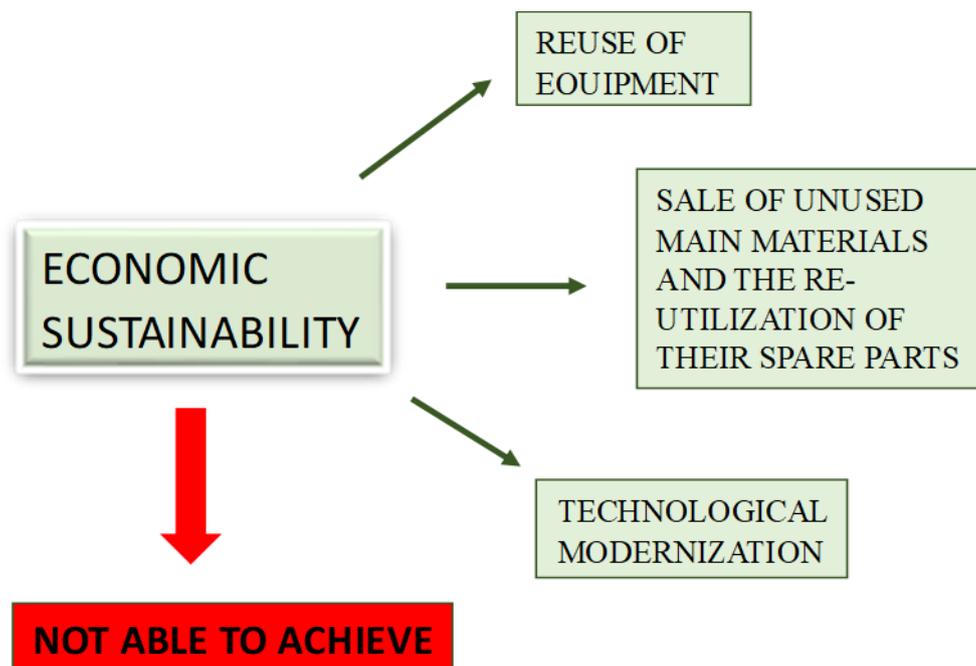


Figure 4.3 How the Greek Army achieves economic sustainability (Source: Interviews)

Why some of the participants believe that the economic sustainability is not achieved?  
Below are mentioned some positions:

*“I think that the Army does not include in targeting its economic development, and given that only in recent years has the concept of economy been introduced in his actions, he still has a long way to go before we are talking about financial sustainability” – Int. 2*

*“The Army is consistently behind and lags behind developments, mainly due to its nature as an organization [large size, strict hierarchy with many echelons of decision-making, many individual entities within it with different missions and needs, etc.]” – Int. 3*

Specifically, there are two words that the participants describe the level of innovation, quality and technology used by the Army: *“Outdated”* and *“Disappointing”*.

However, various proposals are presented regarding the improvement of the situation. Specifically mentioned:

*“... Many uniform costs are decentralized while we could achieve more competitive terms if they were conducted by a central authority, which would have the authority and purchasing power to negotiate strategic alliances with large suppliers.” – Int. 2*

*“More efficient utilization of its own infrastructures (eg Military Factories) and profitable collaborations with other sources of supply (Greek and foreign, state and private).” – Int. 3 – Int. 6*

*“The development of a strong Research and development sector.” – Int. 4*

*“To create standard work methods that will be required for the business needs with knowledge of the best possible saving of resources” – Int. 5*

## **4.5 Environmental sustainability**

As was seen in the literature review, the protection of the environment has been of great concern to the MoND of the country. However, is this noticeable from the staff? According to the results, one would notice that all participants perceive environmental sustainability in the same way.

*“Ensuring environmental integrity in economic policy.” – Int. 2*

*“The actions taken and the actions performed, in the context of the daily operation .....do not have an aggravating effect.” – Int. 3*

*“Development of relations and actions with the environment that do not lead to its destruction, but to its preservation and sometimes its improvement.” – Int. 4 – Int. 6*

*“The materials manufactured or purchased are environmentally friendly.” – Int. 5*

Generally speaking, it is considered that some environmental sustainability practices are applied in the Greek Army, such as:

*“Collection, sale or simple delivery of some materials to suitable bodies for their recycling or inactivation, as well as the gradual replacement of lamps with more energy efficient ones.” – Int. 3*

*“Efforts to save energy, reduce electricity consumption, reduce fuel consumption, use recyclable material.” – Int. 5*

*“There is some improvement. Efforts are being made of energy upgrading of the Units (e.g., replacement of boilers with LED, reduction of paper consumption, controlled consumption of electricity and water)” – Int. 6*

Additionally, all the participants agree that there is some progress, even minimal, although they all agree that efforts have to be made in order the staff to grow a more environmentally friendly culture.

Finally, possible practices that should be adopted from the procurement managers are shown below (Figure 4.4)

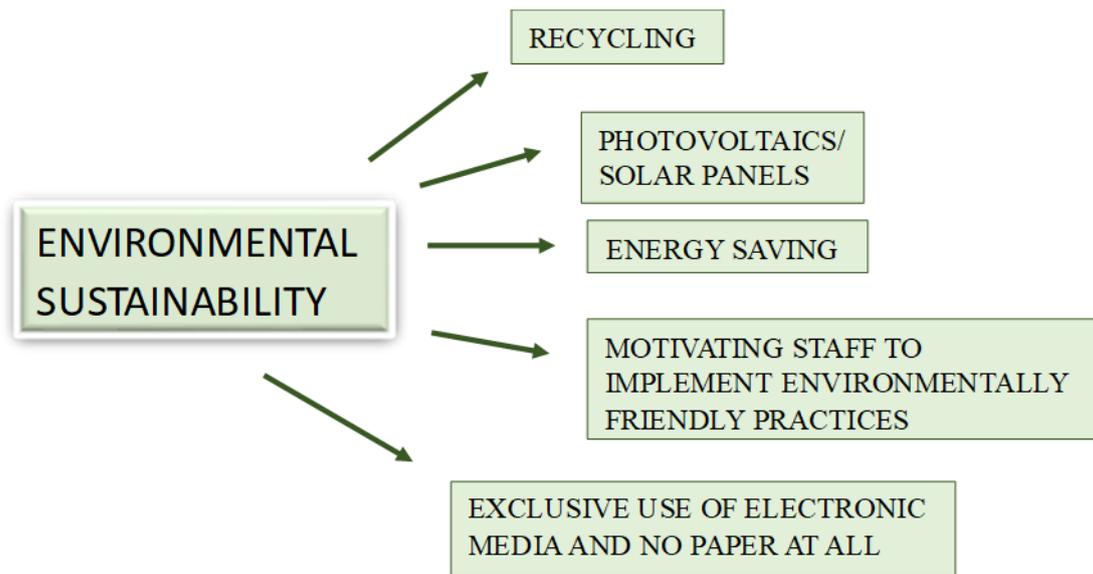


Figure 4.4 Suggested practices for implementation of environmental sustainability (Source: Interviews)

#### 4.6 Social sustainability

According to the positions of participants, the social sustainability is, for the 2 of 6, an unfamiliar term. Although for the rest of them, it is summarized in the conclusion that this term is intertwined with the development of the biotic level and the well-being of the personnel in the working environment. (Figure 4.5)

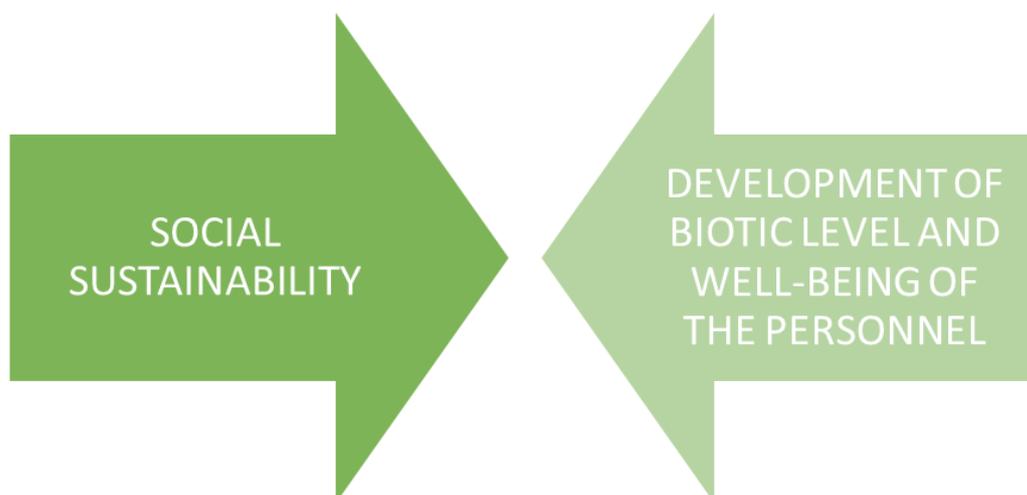


Figure 4.5 Reception of the meaning of the term of social sustainability (Source: Interviews)

Subsequently, as far as it concerns the existence of phenomena that undermine the concept of social sustainability, the opinions of the participants are shown in the Table 4.4.

Interviewee	Respect of the human rights	Existence of forced and mandatory labor	Discrimination among staff about gender, age, position	Existence of extortion and bribery
1.	✓	✗	✗	✗
2.	✓	✓	✓	✗
3.	✓	✓	✓	✓
4.	✓	✗	✗	✗
5.	✓	✗	✓	∅
6.	✓	✗	✓	∅

**Table 4.4 Positions of participants regarding social phenomena (Source: Interviews)**

Observing the data distinguished in the Table 4.4 above, it is definitely clear that the whole considers that there is respect for the human rights of the personnel. However, some positions are stated regarding the existence of forced and mandatory labor in the Army. How is it explained? As it seems, the two opinions represent common elements.

*“Yes, for example the possibility of direct (for training reasons) or indirect (due to a lot of work) coercion to violate the working hours.” – Int. 2*

*“Yes. It refers to working overtime, which is either imposed from above to carry out projects and missions beyond the established and foreseen ones, or is implemented by a part of the staff of the Army voluntarily as a tactic to obtain individual benefit (e.g., qualifications, opportunities for career development, etc.).” – Int. 3*

Moreover, something worthwhile to be mentioned is the existence of discrimination among staff about the gender, age or rank. And indeed, this opinion is also expressed by the only female participant. Shall we see, how this opinion is expressed:

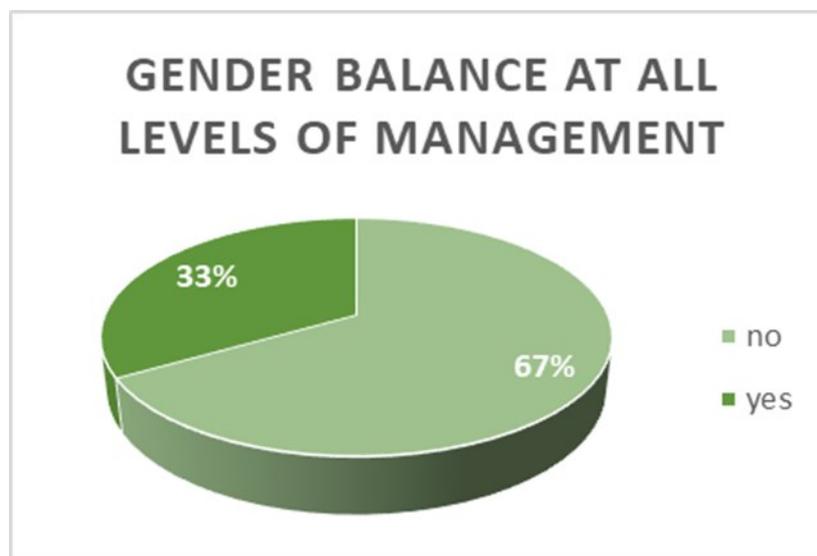
*“Yes. Regarding gender both by men who consider women of limited military ability, and by women who exploit their gender to obtain convenient jobs. Regarding age, because experience can trump innovation even when the arguments are not strong. Regarding the rank, especially between the distinction of Officers - Non-commissioned officers.” – Int. 2*

*“Unfortunately, I think there is discrimination. As a woman, I will say that in a male-dominated environment it is not so easy to survive. You constantly have to prove your worth.*

*I don't think there is yet the awareness that women serve in the Army. I think this is also due to the Greek culture.*” – Int. 6

The methods proposed for the elimination of such phenomena are, in general, the better information of the staff, through lectures, on human rights.

At last, but not least, it is observed that 4 of 6 participants believe that there is not a gender balance at all levels of management, but they all agree that the selection of a manager based on the gender should not exist, because a person's administrative abilities depend on the basis of formal qualifications, such as rank, studies, previous service in corresponding positions etc. (Figure 4.6)



**Figure 4.6**  
gender  
levels of  
(Source:

**Existence of  
balance at all  
management  
Interviews)**

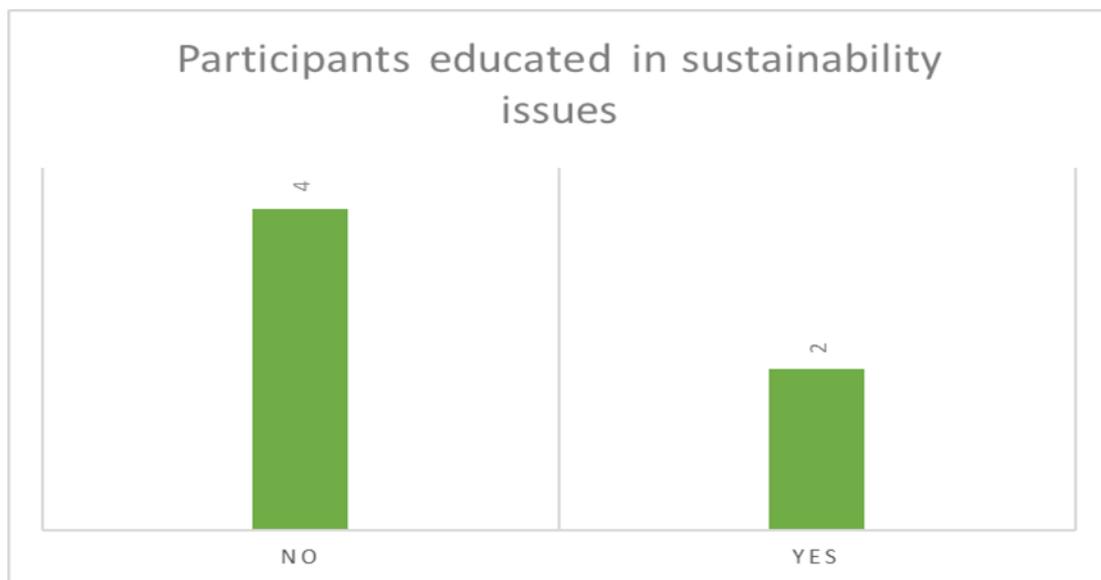
#### **4.7 Adequacy of knowledge in sustainability issues**

It is noticeable that 4 of 6 of the participants are aware of sustainability issues, due to their extra academic studies. Table 4.5 shows the subject of their academic studies. Otherwise, their knowledge has been gained empirically.

Interviewee	Education	Subject
1.	Doctorate	Chemical engineering
2.	Postgraduate	Supply chain management
3.	Undergraduate	Military school graduate – Pedagogy of elementary education
4.	Doctorate	Chemical engineering
5.	Undergraduate	Military school graduate
6.	Postgraduate	Supply chain management

**Table 4.5 Academic studies of the participants (Source: Interviews)**

Moreover, Figure 4.7 shows the percentage of participants that has ever been educated through the Army, about sustainability issues.



**Figure 4.7 Participants educated in sustainability issues (Source: Interviews)**

How could this change, so that the knowledge of the staff to be improved? Some positions are stated below:

*“Encouragement of personal involvement, conversation, practice at work.”* – Int. 2

*“With seminar-type trainings, also using the advantages of asynchronous online training.”*  
– Int. 3

*“With lectures”* – Int. 5

*“With staff awareness lectures, with seminars depending on the position someone holds, with integration of sustainability as a cognitive object in the basic training of the staff.”* –  
Int. 6

Despite this, it is observed that although various knowledge objects are accessible to the staff, there is no personal interest from some of them to study them.

## 4.8 Conclusion

This chapter presented the data collected from semi-structured interviews. After analyzing the background framework of the participants, which helped in understanding their positions regarding the different themes, information was collected about the relationship of the participants with sustainability issues, while it got noticeable that the Army mostly is primarily concerned with achieving operational readiness. Afterward, the study focused on the three forms of sustainability. About economic sustainability, it was observed that the Army achieves it through different ways, such as reusing the equipment, technological modernization and sale of unused materials and their spare parts, although some of the participants stated that economic sustainability is not achieved at all. Additionally, different proposals were presented for the improvement of the Army in such issues, despite the opinion that the Army is mainly outdated and disappointing. Forward to environmental sustainability, it was expressed the opinion that there are some ways of its implementation in the Army, but there is a large space for improvement and different proposals were given for achieving better environmental performance, such as recycling, energy saving, exclusive use of electronic media and motivation of the personnel upon environmentally friendly practices. As far as it concerns the social sustainability, the opinion of the participants was observed with interest regarding the existence of phenomena such as racial discrimination, respect of human rights etc., a special emphasis was given to the expression of opinions regarding the balancing of the two races in the working environment of the Army. Finally, the participants argue that they do not consider their knowledge of sustainability issues to be sufficient due to improper training and information from the Army, while they point out the absence of interest on the part of the staff in sustainability issues in procurement.

## 5. Final conclusions, limitations and future research

### 5.1 Discussion and conclusion

Defense procurement is a complex process involving several federal departments and agencies. Challenges like the growing complexity and the rising cost of major weapons systems and global supply chains, as well as the increasing speed of technological changes in certain fields, have raised the need for implementing by the Army of sustainable practices in all its forms.

This chapter comes to summarize the research findings regarding its aim, objectives and questions. This study aimed to explore the relationship of the personnel employed in managerial positions in the defense procurement with the implementation of sustainable practices in the Army, the perception of the personnel regarding the implementation of the three forms of sustainability and what could be improved in relation to them and the knowledge background upon sustainability issues. In order to achieve this, the research initially focused on approaching participants who are employed in the procurement sector. Then, it was necessary to study the level of daily friction of the participants with the object, as well as to understand how the application of sustainability in the Army in general is considered, before focusing on each sector separately. Then, focusing on each of the manifestations of sustainability, and in order to examine the perception of the personnel in relation to them, it was necessary to investigate how the personnel perceive the different practices adopted and applied by the Army in procurement, as far as sustainability is concerned, how each participant approaches the challenges that arise in the daily work environment, but also to formulate various proposals - solutions for future progress. Finally, in order to support the opinions of the participants, it was necessary to provide information about the cognitive background of each one of them, which would help to better analyze their formulations.

In the initial stages of the research, existing literature was presented in order to gather fundamental information regarding the way the Greek Army operates in the defense procurement, while afterwards, the information needed for the study were collected by semi-

structured interviews to 6 people employed in the procurement sector. Then this data was further analyzed so that to come in conclusions.

### **5.1.1 The relationship of the personnel with the implementation of sustainable practices in the Greek Army**

As formulated by the MoND, with the incorporation of sustainable development into the Greek AF and its adoption by the General Staffs of the Ministry, the sustainable options, the upgrading of the environmental consciousness of the AF's staff and the minimizations of the environmental and energy footprint of the activities will be ensured, achieving development as a goal for the AF to be sustainable for "today" and "tomorrow", as well as to the AF will be integrated into the broader spirit of development policy of the country, while ensuring the highest operational readiness and effectiveness and carrying out the mission. (MoND, 2014)

It is observed that in the higher level of hierarchy, which is the MoND, the combination of sustainable practices with the operational readiness is being a self-purpose. Nevertheless, the most participants believe that the operational needs have to be the first priority regarding the practices implemented in procurement. And not only but, they express the opinion, that this is what is taking place in practice by the managers. It is pointed out that there is scope for combining both, but only in conditions of a stable international environment, while they estimate that there are signs of improvement in relation to the past.

### **5.1.2 Implementation of economic sustainability and possible improvements**

The volume and increases in military spending have generated considerable interest in defense procurement issues among militaries, as the growing concerns about delivery delays, cost overruns and other challenges encountered with major defense procurement projects have added to the interest in reviewing the defense procurement organizations and processes. (Auger, 2020) The Greek Army, as mentioned in literature review, has implemented processes to improve the management of defense materiel.

According to the participants' positions these processes indeed has an impact to the improvement of the economic sustainability performance of the Army, although all the voices insist that the technology, the innovation and the quality of the processes is not up to date and more measurements have to be taken in order to become more sustainable as Army.

It is also noticeable that all the interviewees agree that the management of procurement plays a significant role in gaining a competitive advantage.

The most widespread opinion among the participants is that the Army does not use the personnel properly, meaning in the proper positions, according to their educational background. Moreover, there should be a wider digitalization of the processes and better exploitation of the external collaborations, in order to gain more profitable and competitive conditions.

### **5.1.3 Implementation of environmental sustainability and possible improvements**

In early stage, the AF should identify and take into account in planning and execution of projects and activities, the possible synergies between the environmental sectors, to be addressed of the adverse effects and strengthening the positive one's results. (MoND, 2014)

Among the plans of the MoND for the years 2021-2025 were presented, with regard to the goal of green development, possibilities and opportunities of outstanding importance, through the inclusion of actions aimed, among other things, at the management of solid-liquid waste, prevention and management risks, fossil fuel-energy transition, drinking water supply – water management and finally the development of environmental protection infrastructure. At the same time, infrastructure projects are being promoted with the aim of saving energy in military buildings and reducing their energy footprint, through the preparation of studies related to the energy upgrade of building facilities.

The above mentioned were some of the proposals of the participants regarding the improvement in adopting environmentally friendly practices in the Army. Even so, the participants believe that this improvement has a very slow implementation rate, as there is generally a lack of culture among the staff and definitely, the environmental responsibility is at the same time and individual responsibility.

It is remarkable the fact that although the need to implement environmental sustainability practices is expressed, the participants claim that such a thing is not perceived at the level of management they are in, contrary to what is foreseen and determined in the orders of the relevant levels.

#### **5.1.4 Implementation of social sustainability and possible improvements**

Except from the challenges that the Army faces, in order to meet the government's regulation on environmental controls and standards, there is an internal organization pressure associated with the sustainability of human resources in an environment of increasing staff turnover, increasing work hours and stress levels, and declining satisfaction levels. Managers must consequently confront the challenge to achieve and maintain the productivity and competitive advantage. (Auger, 2020) In a wider context, improving the working environment, contributes to improving the staff's satisfaction, commitment and productivity.

The existence in the Army of phenomena such as race discriminations, corruption and others of that kind are condemned by all the participants and the need for better information of the staff on human rights is expressed, as well as the creation of a culture, and the tightening of the regulatory framework in the event of the appearance of such phenomena.

However, it is encouraging that everyone agrees that racial discrimination in obtaining administrative positions should not exist and that progress has been made regarding this.

#### **5.1.5 Conclusion**

To conclude, this study provides knowledge about the implementation of sustainability in the procurement processes of the Greek Army. From the perspective theory, it enriches the research about the frameworks within which the Army operates, as well as the policies and practices it has adopted in recent years in order to achieve sustainable development. It is evident that the Army makes a worthy effort to become more sustainable and improve its technologies. The study explored the implementation of all the three forms of sustainability. In brief, it was determined that the implementation of sustainable practices shows room for improvement or at least it is perceived that these practices are applied at the higher levels, while going down the supply chain they are significantly absent.

## **5.2 Limitations and future research**

This research has potential limitations which can be foundation for future research. The first limitation is related to the participants chosen for conducting this research. Specifically, the

most participants belong to lower levels of the supply chain, so if the selection was made from higher levels, for example whether it was made from staff working in the MoND, or from staff working in the Air Force or the Navy, the results would be different. Hence, researchers in the future can explore the principles of sustainability on the other General Staffs of the MoND. Moreover, the research was conducted with the qualitative method of interviews, so the data were collected from 6 people. This issue could be dealt with choosing another research method for making conclusions on the subject, that will cover a wider range of participants. Another limitation was the fact that studying such working branches, such as the Army, do not provide you with the ability to do thorough research due to the possible classified information but also the non-easy access to the bibliography, for the same reason. It could also be possible, to compare the results from this research with other armies to identify divergent views and determine common findings.

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## **Appendix A: Interview Questions for Semi-structured Interviews**

Before the interview starts, I would like to gain some background information:

What is your gender?

What is your officer rank?

What is your specialty?

Do you have further education studies?

On which subject?

What is your current position?

For how many years?

How many years of military service do you have?

How many years of work experience in the specialty do you have?

### **Information about the relationship of the participants with sustainability issues**

Q1: In your current position, did the term sustainability ever concern you?

Q2: Have you ever been on a decision-making group on any area of sustainability in

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

Q6: How much progress is there regarding the implementation of sustainability in the Army?

### **Information about the perception of the personnel regarding the implementation of economic sustainability in the procurement**

Q7: How do you perceive economic sustainability?

Q8: How do you think that the Army achieves economic sustainability?

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

Q10: How can the Army combine economic sustainability with operational needs?

Q11: Do you believe procurement plays a significant role in managing the army budget?

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

**Information about the perception of the personnel regarding the implementation of environmental sustainability in the procurement**

Q13: How do you perceive environmental sustainability?

Q14: How do you think that the Army achieves environmental sustainability?

Q15: How do you think the Army is approaching environmental challenges?

Q16: What initiatives are taken to promote greater environmental responsibility?

Q17: How is the development and spread of environmentally friendly technologies encouraged?

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

**Information about the perception of the personnel regarding the implementation of social sustainability in the procurement**

Q21: How do you perceive social sustainability?

Q22: How do you think that the Army achieves social sustainability?

Q23: Are the human rights of personnel supported and respected in the army?

Q24: Is there any form of forced and mandatory labor in the Army?

Q25: Is there discrimination between staff in the Army about gender, age, position?

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

**Information about the adequacy of knowledge of the personnel regarding sustainability issues**

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

Q31: In your daily work, do you consider the implementation of sustainability?

Q32: What is your access to knowledge related to sustainability?

Q33: How could your knowledge of sustainability be improved?

Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

Would you like to add something?

## Appendix B: Transcripts and Summaries of Semi-structured Interviews

### Interview 1:

#### General information

Gender: Male

Officer rank: Colonel

Specialty: Warfare Material

Further education studies: Doctorate

On which subject: Chemical engineering

Current position: Manager of military factory

Years on current position: 10 months

Years of military service: 33 years

Years of work experience in the specialty: 28 years

Q1: In your current position, did the term sustainability ever concern you?

No.

Q2: Have you ever been on a decision-making group on any area of sustainability in procurement?

No.

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

Yes. Because its purpose is the combat.

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

Operational needs are more important.

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

1

Q6: How much progress is there regarding the implementation of sustainability in the Army?

There is no progress.

#### Economic sustainability

Q7: How do you perceive economic sustainability?

-

Q8: How do you think that the Army achieves economic sustainability?

It is not achieved.

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

Disappointing.

Q10: How can the Army combine economic sustainability with operational needs?

For me it is not possible to be combined.

Q11: Do you believe procurement plays a significant role in managing the army budget?

Yes.

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

Yes.

#### Environmental sustainability

Q13: How do you perceive environmental sustainability?

-

Q14: How do you think that the Army achieves environmental sustainability?

There is some significant effort.

Q15: How do you think the Army is approaching environmental challenges?

As it should.

Q16: What initiatives are taken to promote greater environmental responsibility?

Centrally, especially from the Ministry of National Defense.

Q17: How is the development and spread of environmentally friendly technologies encouraged?

By issuing orders.

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

Of course.

10

Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

Recycling, photovoltaics.

Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

Yes.

#### Social sustainability

Q21: How do you perceive social sustainability?

-

Q22: How do you think that the Army achieves social sustainability?

By issuing orders.

Q23: Are the human rights of personnel supported and respected in the army?

Yes.

Q24: Is there any form of forced and mandatory labor in the Army?

No.

Q25: Is there discrimination between staff in the Army about gender, age, position?

No.

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

No.

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

Financial controls.

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

No.

#### Adequacy of knowledge

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

Yes.

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

Yes.

Q31: In your daily work, do you consider the implementation of sustainability?

Yes.

Q32: What is your access to knowledge related to sustainability?

Satisfactory.

Q33: How could your knowledge of sustainability be improved?

-

Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

No.

Would you like to add something?

No.

## **Interview 2:**

### General information

Gender: Male

Officer rank: Lieutenant

Specialty: Warfare Material

Further education studies: Postgraduate

On which subject: Supply chain management

Current position: Head of supply department in expenditure materials and in a retail department

Years on current position: 1.5 years

Years of military service: 11.5 years

Years of work experience in the specialty: 4.5 years

Q1: In your current position, did the term sustainability ever concern you?

No.

Q2: Have you ever been on a decision-making group on any area of sustainability in procurement?

No.

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

Yes.

Both equally, given the current stable international environment, because with sustainability we strengthen our future capabilities. If there is a period of extreme volatility from competitive adversaries that require all available government resources to counter, only then should operational needs take absolute priority.

Economic sustainability is applied to a significant extent, through the reuse - maintenance - renovation (refurbishment) of materials. Social sustainability is applied to a small extent, through personnel management. I haven't seen any implementation of environmental sustainability.

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

In a period of stable international environment, equal.

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

4

Q6: How much progress is there regarding the implementation of sustainability in the Army?

Yes, but very small.

#### Economic sustainability

Q7: How do you perceive economic sustainability?

They are the policies that support long-term economic growth, without compromising social or environmental issues.

Q8: How do you think that the Army achieves economic sustainability?

Mainly with the effort of maintaining materials, reusing equipment such as individual accessories, selling off unused main materials and reusing their spare parts.

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

Extremely outdated.

At the level of the retail department where I am positioned, there is a lack of cooperation with corresponding stations in allied armies, which makes our practices obsolete and less efficient. Furthermore, at the supply department level, many uniform spends are decentralized while we could achieve more competitive terms if they were conducted by a central authority, which would have the authority and purchasing power to negotiate strategic alliances with major suppliers.

Q10: How can the Army combine economic sustainability with operational needs?

Resources saved through better economic viability can be fed back into the military's "economy", in the form of new materiel, better maintenance, more personnel, etc.

Q11: Do you believe procurement plays a significant role in managing the army budget?

Yes, because they constitute a significant percentage of the military's expenses, as well as its capabilities.

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

No, because in conditions of unlimited resources there is no need to manage them.

### Environmental sustainability

Q13: How do you perceive environmental sustainability?

Ensuring environmental integrity in economic policy.

Q14: How do you think that the Army achieves environmental sustainability?

I haven't noticed anything in the Greek Army.

Q15: How do you think the Army is approaching environmental challenges?

I haven't noticed anything in the Greek Army.

Q16: What initiatives are taken to promote greater environmental responsibility?

I haven't noticed anything in the Greek Army.

Q17: How is the development and spread of environmentally friendly technologies encouraged?

I haven't noticed anything in the Greek Army.

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

Yes.

7

Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

Energy sustainability, as it will also save financial resources in the long run.

Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

At a limited level with personal initiatives. For example, in my company I kept a makeshift recycling bin for unclassified documents.

### Social sustainability

Q21: How do you perceive social sustainability?

Ensuring the living standards of workers and their communities.

Q22: How do you think that the Army achieves social sustainability?

With staff care

Q23: Are the human rights of personnel supported and respected in the army?

To a large extent yes, because there is a large regulatory framework concerning them.

Q24: Is there any form of forced and mandatory labor in the Army?

Yes, for example the possibility of direct (for training reasons) or indirect (due to a lot of work) coercion to violate the working hours.

Q25: Is there discrimination between staff in the Army about gender, age, position?

Yes. Regarding gender both by men who consider women of limited military ability, and by women who exploit their gender to obtain convenient jobs. Regarding age, because experience can trump innovation even when the arguments are not strong. Regarding the rank, especially between the distinction of Officers - Non-commissioned officers.

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

There is corruption at various levels, but not very strong. Intimidation by superiors, avoidance of work/responsibilities by employees, nepotism especially in the placements of drawn-up soldiers. I have not personally seen but heard third party stories of petty theft (such as car fuel) or small bribes.

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

Mainly strict regulatory framework.

Further sanitization of the military culture, such as recording and quoting real examples of corruption, as well as their effects at a holistic level, both in the Army and with international examples.

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

No, because administrative positions should only depend on objective criteria of ability, and not on subjective factors such as gender, origin, color, etc.

It should be borne in mind that the number of male Officers is much higher, so the target in senior officer ranks should be roughly proportional, rather than a 50% balance.

#### Adequacy of knowledge

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

Pretty good, and based on my postgraduate studies.

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

Yes, e.g., in seminars or in my postgraduate studies. I don't remember anything about the army, except the military school.

Q31: In your daily work, do you consider the implementation of sustainability?

Yes, mainly social and economic sustainability.

Q32: What is your access to knowledge related to sustainability?

Very limited. Especially with this particular terminology, I don't remember seeing it anywhere.

Q33: How could your knowledge of sustainability be improved?

Personal occupation, conversation, educational material, further studies, practice at work and in personal life.

Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

The main way I think is with targeting at a hierarchical level, so as to trigger innovation at the level of employee - small leader, however, the corresponding support in material/human will also be required. In addition, seminars, access to interesting educational material, advertisements such as posters, speeches, Daily Order (but it should be comprehensive and interesting for the staff to retain it).

Would you like to add something?

No.

### **Interview 3:**

#### General information

Gender: Male

Officer rank: Lieutenant Colonel

Specialty: Warfare Material

Further education studies: Undergraduate

On which subject: Teaching school

Current position: Commanding Officer at an Administrative Care Unit

Years on current position: 1 year

Years of military service: 26 years

Years of work experience in the specialty: 22 years

Q1: In your current position, did the term sustainability ever concern you?

Yes, at the micro level of managing the day-to-day issues and problems of the Unit, both related to the operation and execution of its operational mission.

Q2: Have you ever been on a decision-making group on any area of sustainability in procurement?

Yes. As Executive of AC, in my previous position, when I provided data regarding the Formation's overall needs in materials and supplies, in order to conduct the research for their purchase and supply centrally, to achieve better prices and delivery times. I did not take part in the process of making any final decision, except at the stage of submitting data and related proposals.

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

No. With timely planning and forecasting, core principles of AC, procurement decisions and strategies could be made in light of realizing sustainability. In cases of meeting emergency needs (tactical or operational) it would be acceptable not to consider the sustainability framework.

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

Current needs are usually met at a small level (e.g., Unit), without long-term planning for known and future needs. In other words, the opposite of Hippocrates' ancient saying "prevention is better than cure" applies!

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

2

Q6: How much progress is there regarding the implementation of sustainability in the Army?

Yes, but with very slow steps, especially in relation to other large organizations and advanced Armies.

#### Economic sustainability

Q7: How do you perceive economic sustainability?

Timely planning and forecasting of needs. In this way, the appropriate supplies, materials and means will be secured in time, at favorable prices, both due to time convenience and the size of the orders.

Q8: How do you think that the Army achieves economic sustainability?

It is not achieved.

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

The Army is consistently behind and lags behind developments, mainly due to its nature as an organization [large size, strict hierarchy with many echelons of decision-making, many individual entities within it with different missions and needs, etc.]

Q10: How can the Army combine economic sustainability with operational needs?

By identifying and recording his needs in time, so that he does not "chase" the developments.

Q11: Do you believe procurement plays a significant role in managing the army budget?

Yes, quite clearly.

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

I consider it possible, but on a scale of assessing the possibility in question I would place it below the average value.

Generally, opportunities to enter into pooled procurement agreements are being lost, so I think the competitive advantage will be negative. Also, it could utilize more efficient its

own infrastructures (e.g., military factories) and make profitable collaborations with other sources of supply (Greek and foreign, state and private). It can be addressed to organizations - services whose mission is to find supplies, means and materials for several Armies, resulting in favorable prices. One such agency is NATO's NSPA.

### Environmental sustainability

Q13: How do you perceive environmental sustainability?

The actions undertaken and the actions carried out, in the context of the daily operation, training and operational mission of the Army, leave as little footprint as possible on the environment. At the very least, not to have an aggravating effect.

Q14: How do you think that the Army achieves environmental sustainability?

Some practices have been adopted, such as the collection of frying oils, mineral oils, rubber tires, and the sale or simple delivery of them to suitable agencies for recycling or inactivation, as well as the gradual replacement of lamps with more energy efficient ones.

Q15: How do you think the Army is approaching environmental challenges?

Gradually and with slow steps, despite all the importance of the subject.

Q16: What initiatives are taken to promote greater environmental responsibility?

Some staff information orders, which are periodically issued.

Q17: How is the development and spread of environmentally friendly technologies encouraged?

KETES is a body that deals with this, within the framework of the Army.

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

Of course.

With an excellent 10, I would say 8 to 9.

Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

Remunerative incentives should be established, in order to have a direct correlation between the degree of implementation and the benefit of the person acting (eg individually, at the level of a Unit, Formation, etc.).

Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

To a large extent no.

### Social sustainability

Q21: How do you perceive social sustainability?

The actions undertaken and the actions carried out, within the context of the daily operation, training and operational mission of the ES, to have a positive effect on the more specific (Army staff) and wider social environment, in which they act and function, promoting the further development of its environment. At the very least, not to have a negative effect.

Q22: How do you think that the Army achieves social sustainability?

With the adoption of several beneficial measures, either through the implementation of laws or following decisions of the political and military leadership of the Army.

Q23: Are the human rights of personnel supported and respected in the army?

Yes, corresponding orders

Q24: Is there any form of forced and mandatory labor in the Army?

Yes. It refers to working overtime, which is either imposed from above to carry out projects and missions beyond the established and foreseen ones, or is implemented by a part of the staff of the Army voluntarily as a tactic to obtain individual benefit (e.g., qualifications, opportunities for career development, etc.).

Q25: Is there discrimination between staff in the Army about gender, age, position?

Yes, but to a very small degree, which is constantly decreasing.

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

Yes.

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

Administrative measures, such as periodic evaluation of the staff, inspections of the operation of individual departments, administrations, offices, etc., rendering of an annual account by the accountants, etc.

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

No. A person's administrative abilities should not depend and be examined on the basis of gender, but purely on the basis of formal qualifications (grade, studies, previous service in corresponding positions, etc.).

#### Adequacy of knowledge

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

No.

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

No.

Q31: In your daily work, do you consider the implementation of sustainability?

Yes, both in relation to the operation and execution of the operational mission. A typical example is the pursuit of a combination of movements to carry out the various missions of the Unit.

Q32: What is your access to knowledge related to sustainability?

Minimal, as I simply don't know what to look for and any search will be in the style of a google search...

Q33: How could your knowledge of sustainability be improved?

With seminar-type trainings, also using the advantages of asynchronous online education.

Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

Yes. As I mentioned above, with seminar-type trainings, also using the advantages of asynchronous online training, depending on the level of each one [Commander of a Unit or Formation, Head of supply department (Unit or Formation etc.)]

Would you like to add something?

No.

#### **Interview 4:**

##### General information

Gender: Male

Officer rank: Lieutenant Colonel

Specialty: Warfare Material

Further education studies: Doctorate

On which subject: Chemical engineering

Current position: Head of supply department in expenditure materials

Years on current position:

Years of military service:

Years of work experience in the specialty:

Q1: In your current position, did the term sustainability ever concern you?

No.

Q2: Have you ever been on a decision-making group on any area of sustainability in procurement?

No.

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

Both factors should be considered, with greater importance on the operational needs. Usually, the concept of sustainability is not considered (or minimally considered) when making decisions.

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

I think operational needs are more important than sustainability.

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

3

Q6: How much progress is there regarding the implementation of sustainability in the Army?

I think that the progress is minimal.

#### Economic sustainability

Q7: How do you perceive economic sustainability?

Economy growing a business (or in the case of the military achieving potentially economies of scale) through innovation, effectiveness, use and reuse natural and human resources.

Q8: How do you think that the Army achieves economic sustainability?

I think that the land army does not include in targeting its economic development, and given that only in recent years has the concept of economy been introduced in his actions, he still has a long way to go before we are talking about financial sustainability.

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

I think that in innovation and technology the Army is far behind any contemporary profitable business.

Q10: How can the Army combine economic sustainability with operational needs?

For them to perform current financial practices should be accepted in brave decisions that will change until today established mentality, something which is not visible at the present.

Q11: Do you believe procurement plays a significant role in managing the army budget?  
It definitely plays an important role.

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

I think no, the problem I think it's not the lack of resources, but many times the lack of special knowledge and will.

#### Environmental sustainability

Q13: How do you perceive environmental sustainability?

Development of relationships and actions with the environment that do not lead to its destruction, but to preserving and even improving it.

Q14: How do you think that the Army achieves environmental sustainability?

So far, i think something like this is not successful.

Q15: How do you think the Army is approaching environmental challenges?

In the last years the army is somehow approaching this field, mainly with actions and actions made mainly to be done and without any deeper background or with any long-term goal.

Q16: What initiatives are taken to promote greater environmental responsibility?

Such initiatives remain at the highest levels of management and end up at the lower levels as sterile information and often as mandatory participation.

Q17: How is the development and spread of environmentally friendly technologies encouraged?

I don't think it's encouraged.

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

Yes.

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Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

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Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

They would be implemented but on a smaller scale.

#### Social sustainability

Q21: How do you perceive social sustainability?

The ability of a social system, such as the military, to operate at a given level of well-being over a long period of time.

Q22: How do you think that the Army achieves social sustainability?

Probably not.

Q23: Are the human rights of personnel supported and respected in the army?

More than it should.

Q24: Is there any form of forced and mandatory labor in the Army?

No.

Q25: Is there discrimination between staff in the Army about gender, age, position?

Maybe noy.

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

I think not.

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

I think the army has a particularly strict framework against such phenomena.

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

No, I think both sexes have similar opportunities.

#### Adequacy of knowledge

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

Yes. Because of studies.

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

Yes.

Q31: In your daily work, do you consider the implementation of sustainability?

No.

Q32: What is your access to knowledge related to sustainability?

I have access.

Q33: How could your knowledge of sustainability be improved?

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Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

It could do so, primarily by establishing incentives for actions that promote sustainability and highlight the role of the military in modern society.

Would you like to add something?

No.

## **Interview 5:**

### General information

Gender: Male

Officer rank: Lieutenant

Specialty: Warfare Material

Further education studies: Undergraduate

On which subject: Military school

Current position: Ammunition company commander

Years on current position: 1 year

Years of military service: 12 years

Years of work experience in the specialty: 7 years

Q1: In your current position, did the term sustainability ever concern you?

No.

Q2: Have you ever been on a decision-making group on any area of sustainability in procurement?

No.

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

Yes.

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

Operational needs.

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

3

Q6: How much progress is there regarding the implementation of sustainability in the Army?

Yes.

#### Economic sustainability

Q7: How do you perceive economic sustainability?

An effort to save resources, among the tasks performed daily in the Army.

Q8: How do you think that the Army achieves economic sustainability?

Saving movements, modernizing the technologies it uses, creating a culture of saving financial resources.

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

Innovative ideas are not used. Significant importance is given to the quality of materials but the technology is outdated.

Q10: How can the Army combine economic sustainability with operational needs?

To create standard work methods that will be required for the business needs with knowledge of the best possible saving of resources.

Q11: Do you believe procurement plays a significant role in managing the army budget?

Surely.

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

No.

#### Environmental sustainability

Q13: How do you perceive environmental sustainability?

The materials manufactured or purchased are environmentally friendly.

Q14: How do you think that the Army achieves environmental sustainability?

Efforts to save energy, reduce electricity consumption, reduce fuel consumption, use recyclable material.

Q15: How do you think the Army is approaching environmental challenges?

It is not in the immediate priorities.

Q16: What initiatives are taken to promote greater environmental responsibility?

I am not aware of this.

Q17: How is the development and spread of environmentally friendly technologies encouraged?

It is not encouraged.

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

Yes.100%.

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Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

The installment of solar panels.

Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

No, the culture does not exist.

### Social sustainability

Q21: How do you perceive social sustainability?

-

Q22: How do you think that the Army achieves social sustainability?

Orders concerning the personal, the facilitation of the personal but also their protection within a framework of rules.

Q23: Are the human rights of personnel supported and respected in the army?

Yes.

Q24: Is there any form of forced and mandatory labor in the Army?

No.

Q25: Is there discrimination between staff in the Army about gender, age, position?

Yes.

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

I am not aware.

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

He has issued a series of orders for the relief and protection of personnel. At each level of management, there is the corresponding personal care from the manager/director to solve social problems.

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

No, because gender has nothing to do with the qualifications and the result someone can offer as a commander.

#### Adequacy of knowledge

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

No. It is based on the experience.

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

No.

Q31: In your daily work, do you consider the implementation of sustainability?

Yes.

Q32: What is your access to knowledge related to sustainability?

There is access but there is no interest. Access is free.

Q33: How could your knowledge of sustainability be improved?

With lectures.

Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

Sure. There is the need for improvement.

Would you like to add something?

No.

## **Interview 6:**

### General information

Gender: Female

Officer rank: Lieutenant

Specialty: Warfare Material

Further education studies: Postgraduate

On which subject: Supply chain management

Current position: Head of supply department in expenditure materials

Years on current position: 4 years

Years of military service: 12 years

Years of work experience in the specialty: 7 years

Q1: In your current position, did the term sustainability ever concern you?

Yes, in the sense that I handle administrative matters.

Q2: Have you ever been on a decision-making group on any area of sustainability in procurement?

Yes, in general when decisions are to be made on various issues of everyday life (eg how we will combine the movements to receive materials from the storage base, or how we will combine movements to transport ammunition).

Q3: Do you think the Army should prioritize the operational needs during decision-making on procurement issues or the implementation of sustainability?

There should be a combination of them two.

Q4: In what order would you put sustainability, in regard to its importance, when making decisions and strategies, in relation to operational needs?

Operational needs, because this is the mission of the Army. But from there and because of various factors, the reduced resources, the minimization of the environmental footprint and also the fact that the management of personnel has become more complex, it will have to include the needs in a sustainable framework.

The whole issue is complicated for me. The issue for me is to create such a culture in the staff so that when carrying out the operational needs, it always comes as a first thought if everything we want to implement contributes to the development of sustainability. Somehow it should become a way of life

Q5: On a scale of 1 to 10, how would you grade the Army on the implementation of sustainability in procurement?

I would say leniently with 4 because from my little experience, it is applied to a very small amount and mainly to the higher levels. As we go down the supply chain, it generally disappears.

Q6: How much progress is there regarding the implementation of sustainability in the Army?

There is progress, if you think that we are just talking about it.

#### Economic sustainability

Q7: How do you perceive economic sustainability?

If I had no contact with the object, the truth is that I would not even know what it means. I would imagine something related to financial resources and better management.

Q8: How do you think that the Army achieves economic sustainability?

In general, in recent years, due to the reduction of financial resources, I think that somehow the administrations were forced to change practices and to try to have a better planning for the utilization of the money they have. They were also forced to think of different ways to ensure operational readiness.

Q9: How would you comment on the level of innovation, quality and technology used by the Army?

I think that there is definitely an improvement in terms of innovation because in a way we are forced to because of the huge technological leap, but also because of our cooperation with other countries and armies. As for the quality, I think that it is all intertwined with what you offer as a financial exchange, i.e., if you want to drop the budget, then you necessarily drop the quality as well. As for the technology, I will say the same as before, certainly there is an effort, but for me it is average.

Q10: How can the Army combine economic sustainability with operational needs?

The culture will have to be created first and then a framework of rules within which we will operate.

Q11: Do you believe procurement plays a significant role in managing the army budget?

Procurement is one of the most important issues. The whole supply chain is based on them in my opinion. I simply think that this has not yet been noticed by the superiors.

Q12: If, in ideal conditions, financial resources were unlimited, do you think that economic sustainability practices would be implemented in the Army?

Not because I think this is in the Greek mentality. The more I have, the more I have to spend. That's how I think about it. This is also seen in the present, because in the past when economic resources were more, there was no forecast for the future, with the result that we are currently in this dire situation.

Environmental sustainability

Q13: How do you perceive environmental sustainability?

To operate with environmental awareness.

Q14: How do you think that the Army achieves environmental sustainability?

as for the environment, I think there is some improvement. Efforts are being made to upgrade the units (e.g., replacing the lamps with LEDs, reducing the consumption of paper, controlling the consumption of electricity and water. These are among the first things that came to my mind.

Q15: How do you think the Army is approaching environmental challenges?

I think he has realized the situation. From there and beyond, it is the fact that there are also specific demands from higher levels, such as the European Union.

Q16: What initiatives are taken to promote greater environmental responsibility?

For example, the institution of “The friend of the environment” has been established as a driving force in the units. But also, with regulations that are issued, for the development of the staff's awareness.

Q17: How is the development and spread of environmentally friendly technologies encouraged?

In general, the technologies used by the military are quite or very outdated. There is an attempt to renew it, but it has not yet reached the lower levels.

Q18: Do you believe that environmental responsibility is parallel and individual responsibility? How would you rate yourself?

From there it starts and ends in the collective piece

7. I'm sure it's always in the back of my mind, but a lot of times habit gets the better of me.

Q19: If you were asked to recommend an additional measure to implement environmental sustainability, what would it be?

Energy upgrading of the buildings, exclusive use of electronic media and no paper at all.

Q20: If there was no obligation to implement specific environmental sustainability requirements in the public sector, including the Army, do you think they would be implemented? If not, for what reasons?

No, culture does not exist in the greatest proportion of the personnel.

### Social sustainability

Q21: How do you perceive social sustainability?

Is a term not so well known to the general public. I would think of something related to the well-being of the staff.

Q22: How do you think that the Army achieves social sustainability?

As for the personal, there is definitely an improvement in working conditions, many conveniences in everyday life.

From then on, I know that the partners of the army must also meet specific conditions such as the prohibition of child labor or not to cooperate with suppliers where there are poor working conditions.

Q23: Are the human rights of personnel supported and respected in the army?

Yes, they also are protected by rules and orders.

Q24: Is there any form of forced and mandatory labor in the Army?

No, I think everyone works for the benefit of the service, I imagine if someone didn't want to work in the army, they would leave.

Q25: Is there discrimination between staff in the Army about gender, age, position?

Unfortunately, I think there is discrimination. As a woman, I will say that in a male-dominated environment it is not so easy to survive. You constantly have to prove your worth. I don't think there is yet the awareness that women serve in the army. I think this is also due to the Greek culture.

Q26: Is there any kind of corruption in the Army, including extortion and bribery?

I haven't noticed anything. Certainly, if there is, it is reprehensible and if I had known about it, I would have informed my commander.

Q27: What measures does the Army take to combat such phenomena? what additional measures would you take to fight such phenomena?

There are many orders and regulations to deal with such phenomena.

Individuals must know their rights. Also, for the distinction between the staff, I would try through lectures to sensitize the staff to such issues.

Q28: Would the gender of someone applying for an administrative position play a role for you, if not, why?

No, because the commander is not judged by his gender but by his skills and qualifications and by the decisions he makes.

#### Adequacy of knowledge

Q29: Do you consider your knowledge on sustainability issues sufficient? Where is your knowledge based?

I would say that it is sufficient due to my studies in a corresponding postgraduate program.

Q30: Have you ever been trained, even in the form of simple speech, on matters of implementing sustainability?

No, never.

Q31: In your daily work, do you consider the implementation of sustainability?

I am trying to.

Q32: What is your access to knowledge related to sustainability?

There is access, but small.

Q33: How could your knowledge of sustainability be improved?

With awareness-raising lectures, with seminars according to the position that someone holds, with the integration of sustainability as a cognitive subject in the basic training of the staff.

Q34: Do you think that the Army should provide better training of personnel regarding sustainability? How could it be achieved?

Surely, more things could be done.

Would you like to add something?

No.

**Author's Statement:**

I hereby expressly declare that, according to the article 8 of Law 1559/1986, this dissertation is solely the product of my personal work, does not infringe any intellectual property, personality and personal data rights of third parties, does not contain works/contributions from third parties for which the permission of the authors/beneficiaries is required, is not the product of partial or total plagiarism, and that the sources used are limited to the literature references alone and meet the rules of scientific citations.