

DETERMINING MILITARY MODERNIZATION
PROCESS IN MALAWI DEFENCE FORCE

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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Fort Leavenworth, Kansas
2019

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REPORT DOCUMENTATION PAGE				<i>Form Approved</i> <i>OMB No. 0704-0188</i>	
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1. REPORT DATE (DD-MM-YYYY) 14-06-2019		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) AUG 2018– JUN 2019	
4. TITLE AND SUBTITLE Determining Military Modernization Process in Malawi Defence Force				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Major Joseph Mike Mambo				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT Change in the military is necessary for the organization to compete, grow, and improve while operating. For that reason, military organizations need a change process that is capable of orchestrating effective and efficient changes without bringing chaos into the organization. This research investigates a suitable qualitative military modernization process model for the Malawi Defence Force (MDF) to respond to future threats. This study is an applied professional research case study that proposes a model based on Capability Based Planning (CBP). This model provides a guide to understanding MDF socio-political situations that impact strategic military policies and posture. It focuses on transformative worldview inquiry to examine trends and variables that provide political and social action to advance change.					
15. SUBJECT TERMS Malawi, Malawi Defence Force, Military Modernization, Military Capability, Capability Based Planning, Strategic Guidance, Modernization Model, Framework Model, Force Management					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT (U)	18. NUMBER OF PAGES 113	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. PHONE NUMBER (include area code)

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

DETERMINING MILITARY MODERNIZATION PROCESS IN MALAWI DEFENCE FORCE, by Major Joseph Mambo, 113 pages.

Change in the military is necessary for the organization to compete, grow, and improve while operating. For that reason, military organizations need a change process that is capable of orchestrating effective and efficient changes without bringing chaos into the organization. This research investigates a suitable qualitative military modernization process model for the Malawi Defence Force (MDF) to respond to future threats. The study is an applied professional research case study that proposes a model based on Capability Based Planning (CBP). This model provides a guide to understanding MDF socio-political situations that impact strategic military policies and posture. It focuses on transformative worldview inquiry to examine trends and variables that provide political and social action to advance change.

ACKNOWLEDGMENTS

At the outset, may I convey special thanks to Malawi Defence Commander, General Griffin Supuni-Phiri, for having accorded me an opportunity to participate in this much coveted course at the U.S. Army Command and General Staff College (CGSC). I am in debt to his mentorship and motivation to attend the CGSC while simultaneously completing my Masters in Military Arts and Science (MMAS).

I would like to thank my lovely wife, Janice and my kids, Juan-Kyle, and Jotham-Jason, for providing me with physical, emotional, and spiritual support. The team gives me a sense of purpose to life and keeps me focused.

I wish to express my sincere gratitude to my committee, Mr. Michael Burke, Dr. O Shawn Cupp, and LTC Andrew Thueme for taking me on a very fruitful journey in conducting this research. Their constant guidance, advice and interests in my work made it a life experience for me. Special thanks to my editor, Ms. Bonnie Joranko, for organizing the work in greatest order. I appreciate your untiring efforts and dedication to see me through this work.

I would like to show my appreciation to my peers, LTC Gift Njete, MAJ Victor Moyo, MAJ Ephraim Ngoga, MAJ Sam Rungwira, colleagues from Staff Group 10D and MMAS seminar group for the numerous discussions and suggestions. Their contributions made my research more enjoyable.

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ACRONYMS

AFMM	U.S. Army Force Management Model
CBP	Capability Based Planning
DOTMLPF-P	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy
DCA	Defensive Counter Air
DRC	Democratic Republic of Congo
MDF	Malawian Defense Force
MM	Military Modernization
PSO	Peace Support Operation
UN	United Nations

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CHAPTER 1

INTRODUCTION

My second priority is modernization—building greater capacity and capabilities in the long term. This means growing our operational force while maintaining quality, reshaping it to be more robust and successful in all domains, and modernizing it with the best weapons and equipment available to guarantee clear overmatch in future conflicts.

—Mark T. Esper, Initial message to the force
from the 23rd secretary of the Army

Background

Change is necessary for organizations to compete, grow, and improve while operating. However, changing large organizations with well-developed and embedded cultures is challenging. The change in military organizations is difficult to achieve because of the rich culture. Zellman, Heilbrun, Schmidt, and Builder neatly summarize the core elements of military culture as “conservative, rooted in history and tradition, based on group loyalty and conformity and oriented toward obedience to superiors” (Zellman, Heilbrun, Schmidt, and Builder 1993, 369). Therefore, the emergence or increased domination of new, non-traditional, organizational changes meets strong resistance because it represents a contrast to the traditional definition of military organizational culture. For that reason, military organizations need a change process that is capable of orchestrating effective and efficient changes without bringing chaos into the organization. The military modernization (MM) process helps organizational leaders and military professionals to adjust to current trends quickly and prepare capabilities for anticipated future and perform very well in adjusting to the tempo of the changing environment within the construct of available resources (CAC 2018).

Malawi is in southeast Central Africa. It is a landlocked nation bordered by Tanzania to the northeast, Mozambique to the southeast and southwest, and Zambia to the northwest. Owing to its elongated shape, Malawi has extreme dimensions: it is 901 kilometers in length and from 81 to 161 kilometers in breadth. It has a total surface area of approximately 118,484 square kilometers, 20 percent of which is water. Lake Malawi, Africa's third largest lake, poses as a dominant feature of the country. It shares a common border between Malawi, Tanzania, and Mozambique. The lake extends for a length of 580 kilometers and has its outlet in the Shire River, which discharges into the Zambezi River (CIA 2011). Until its independence, Nyasaland, now Malawi was one of the countries in Africa under British colonial rule. Malawi got its independence in 1964 under the leadership of Dr. Hastings Kamuzu Banda (Kalinga 1998, 56).

The Malawi Defence Force (MDF) is Malawi's military organization, and its history dates back to 1902. The British needed military forces to safeguard against both internal and external aggression against its colonies. In this regard, the British created the King's African Rifles in 1902. The principal objective of this regiment was to maintain and support colonial political order in those African colonies under British administration (Kalinga 1998, 42). In this light, Malawi took over one battalion from the King's African Rifles after attaining independence in 1964 as part of the decolonization process. However, the one-party autocratic government gave limited capabilities to the military to eliminate the prospects of a military coup and to ensure that it exerted subjective control over the military. By limiting military capabilities, Malawi was among the seventeen countries that have never had a successful coup since its independence in Africa (Valpy 1985). Phiri furthermore argues that Kamuzu Banda limited military capability in order to

foster political stability. He believed that accelerated population growth and rapid urbanization coupled with economic decline, would provide reasons for criticism from a collective group of young men, which may eventually demand soldiers to take action. Then Banda initiated downsizing of the military and deviating military hardware to strengthen a paramilitary wing of the ruling party (Phiri 2011, 35). It was not until the late 1980s and 1990s when the MDF was involved in operation KWAENI in Mozambique that witnessed a sharp rise in military recruitment and capability development of the force (Pike 2014).

In 1994, Malawi became a democratic state. After democratization, the new security sector went through reforms. Following recommendations of Interstate Defense and Security Council of the Southern African Development Community (SADC), the MDF embarked on Civil-Military Relation reforms to ensure objective civilian control of the military. The reforms necessitated the establishment of civilian control mechanisms and legislative oversight. For instance, the Ministry of Defence (MoD) was created to provide strategic direction to MDF, while the Parliamentary Committee on Defence and Security provide oversight (Phiri and Jones 2008, 14). Despite these changes on the strategic level, the MDF still operates, using structure, system, and doctrine left by its colonial masters. There is no significant attention paid on how the organization should adapt to a changing environment when considering staffing, training, acquisition of equipment, and deployment.

Purpose

The purpose of this thesis is to determine the modernization process that MDF needs to follow in order to respond to future threats. MDF does not have a force

management vehicle that interprets National Strategy through military deliverables. As a result, programming, budgeting, and execution of military programs is challenging. Consequently, defense budget cuts were inevitable over the past few years. Profoundly, Malawi faces many challenges that range from weak infrastructure development, poverty and hunger, low health status, limited educational opportunities, a struggling economy, and problems of accountability and transparency (Pike 2014). Therefore, civilians view military improvement as another way of government spending on non-competing demands. For that reason, a military modernization process presents a logical, coordinated, and synchronized way in changing military systems, structure, and policies within constrained resources to achieve desirable military deliverables.

Issues

The main issue that the MDF currently faces is constrained budgetary support; therefore, it is necessary to use available resources prudently to maximize results. However, the primary reason countries spend money on the military is to acquire military capability that is vital for protecting and defending the national interest. It is, therefore, necessary to have an effective process that is formulated upon vital national interests, implemented to achieve primary defense objectives, and monitored by all stakeholders. In so doing, the military will attain the required capabilities and project necessary national power.

Problem

MDF does not have a logical process that translates strategic guidance into military capability. In order to provide necessary security to society, defense systems

ought to possess appropriate capabilities that would enable an adequate response to security challenges and threats. Besides, the military organization needs to adapt to changes in the operating environment, which is usually complicated, unpredictable, and dynamic. Therefore, a MM process represents a critical element that can synchronize strategic objective to military capability in a complex environment. However, MDF has not conducted academic research to determine a suitable military modernization process. Therefore, it is necessary to develop a modernization process for the MDF that can balance between strategic needs and leverage the inherent opportunities.

Research Questions

The thesis question concerns determining the modernization process that MDF needs to follow in order to respond to future threats. The question centers on the process of determining what capabilities are required to respond to future threats. The primary thesis question is how MDF should modernize to respond to future threats? This question sets a benchmark for assessing strategic guidance from which specific roles and tasks derive. The subordinate question to this thesis question is what strategic framework gives MDF guidance? The second subordinate question is what is the current military capability of MDF? These questions investigate specific elements in order to determine a suitable modernization process that might be adopted by MDF in order to respond to future threats.

Assumptions

The following assumptions were made during this research: first, a process for determining modernization must be conducted through a study of essential modernization

processes from other military forces. The second assumption is that there are concepts of a military modernization process, like U.S. Army Force Management Model (AFMM), Framework Model, and Capability Based Planning (CBP) can be applied to modernization process of the MDF regardless of its size and capabilities. The third assumption is that the U.S. Military's Universal Joint Task List is universal throughout all militaries, and its basic definition applies to MDF.

Definition of Terms

For the sake of general discussion, this research discusses some terms of modernization and military capability assessment. The term *military modernization* means, “the relevant upgrade or improvement of existing military capabilities through the acquisition of new imported or indigenously developed weapons systems and supporting assets, the incorporation of new doctrines, the creation of new organizational structures, and the changes in policies, leadership and education facilities to respond to the doctrinal changes” (Tellis, Szalwinski and Wills 2017).

Military capability is “the ability to achieve a specified wartime objective (win a war or battle, destroy a target set)” (Military Factory 2018). The notion of military capability is the understanding that a country's military organization receives national resources and transform them into specific warfighting capabilities. The warfighting capabilities, effectiveness enables a country's leader to impose their will on enemies, existing, and potential (Tellis, Bially, Layne, and MacPherson 2000). Furthermore, this thesis uses *Ends, Ways, Means* model, *Isaac's Military Capability Measurement* framework, and, *Walt and Gilson Policy Analysis Triangle* for data analysis.

The *Walt and Gilson policy analysis* model discusses the triangle to assess the viability of multiple policy options. Government officials and non-government organizations use policy analysis to assist policymakers in choosing preferred courses of actions by clarifying the problem, outlining the alternative solutions and displaying tradeoffs among their consequences” (Walt and Gilson 1994).

Ends, Ways, and, Means Model, is a depiction of a strategic equation where $ENDS = WAYS + MEANS$. Ends are the strategic outcomes or end states desired; Ways are the methods, tactics, and procedures, practices, and strategies to achieve those ends while Means are the resources required to achieve the ends, such as troops, weapons systems, money, political will, and time. This model balances objectives and the price necessary to pay in order to attain such objectives (Laich 2010).

RAND Capability Measurement Framework, also called *Isaac’s Framework*, examines military capability as the output dimension of national power. The purpose of this framework is to locate the military competencies of a country on a schematic map that allows the analyst to depict its relative capabilities. This framework seeks to identify the strategic resources a military receives from the government it serves and how those resources convert into useful military capabilities. It further seeks to understand the tangible outputs of military capabilities, which converts into combat force through a spectrum of warfighting functions (Tellis, Bially, Layne, and MacPherson 2000).

Limitations

One of the most significant limitations is a severe lack of available literature from peer military forces, specifically from African countries. The AFMM, Framework, and CBP are not the preferred case study models for this thesis; however, they are the only

available ones. The reason is that the modernization process has extensive resources, interdependence with other elements of national power, numerous research institutes, and vast policy institutional involvement, which is in its infancy in Malawi. Other limitations include the author's limited experience in defense management and strategic planning, access to classified documents and politically oriented documents, and their interpretations. Furthermore, most Malawian and MDF strategic documents are outdated, and some are still in draft form.

Scope and Delimitation

The scope of the study covers the analysis of other capability-based modernization processes to determine the process that MDF needs to adopt in order to modernize and respond to future threats. The study draws inferences from comparisons of the AFMM, Framework model, and Capability Based Planning case studies. The delimitation is that the processes studied in this thesis apply to advanced militaries and cannot wholly give a true reflection of the process that MDF should adopt. However, the processes' elements apply in any other military with no significant alteration of results. The other delimitation is that the thesis does not review all the modernization processes in their entirety, but is limited to draw significant processes, contexts, content, and reaction of actors within each model and their significant differences with other models. The study does not review the specific roles of MDF but only focuses on the primary role in determining the current MDF capability. However, it is unlikely that the data not included would alter the conclusions of the thesis.

Significance of the Study

This research is significant because it will provide the Malawi Government and MDF policymakers with an option in the process of modernizing its military. The analytical model developed in this study can be adapted and implemented as a modern and efficient instrument to design, build, and manage a military force. Furthermore, the process applies to any other military establishment that has similar status as Malawi. Additionally, this research will add to the body of knowledge on solving modernization problems in other countries with small military capability.

Summary

This chapter introduced the topic, research questions, assumptions, definitions, limitations, delimitations, and significance of this effort. In a highly competitive world, for an organization to be relevant and successful, it must continue to improve by adapting to the current trends. Chapter 2 discusses relevant literature available for this study.

CHAPTER 2

LITERATURE REVIEW

Introduction

The primary question of this research is how the Malawi Defence Force (MDF) should modernize to respond to future threats. The purpose of the study is to determine a suitable modernization process that MDF might implement to modernize. First, the chapter looks at Malawi's strategic guidance that frames military roles and tasks. Second, it reviews Malawi's current military capability by considering Doctrine, Organization, Training, Materiel, Leadership, and Education, Policies, and Facilities (DOTML-PF) parameters. Third, the chapter considers some essential concepts on Military Modernization (MM) by looking at primary schools of thoughts and their respective arguments. Finally, this chapter focuses on the Army Force Management Model, Capability Based Planning, and Framework models as three case studies that other militaries adopted in order to modernize. The chapter closes with a summary.

Malawi's Military Strategic Guidance

The Malawi Constitution mandates establishment of the MDF under section 160. The Constitution dictates four roles that MDF should perform. "First, it is to uphold the sovereignty and territorial integrity of the Republic and guard against threats to the safety of its citizens by force of arms. Second, uphold and protect the constitutional order in the Republic and assist the civil authorities in the proper exercise of their functions under the Constitution. Third, provide technical expertise and resources to assist the civilian authorities in the maintenance of essential services in times of emergency. Finally,

perform such other duties outside the territory of Malawi as may be required of them by any treaty entered into by Malawi” (Malawi Government 1994).

National Security policy echoes on the roles and tasks of MDF. The policy outlines the protection of territorial integrity in an ever-changing environment against both internal and external threats as a vital interest (Malawi Government 2017a). However, the National Defense policy provides a framework to guide the function of MDF with a view of preserving the sovereignty and the attainment of national interest (Malawi Ministry of Defence 2009). Apart from fulfilling the significant role of defending the country, the MDF is also currently involved in the United Nations (UN) Peace Support Operations (PSO). MDF has one battalion in the Democratic Republic of Congo (DRC) under the Force Intervention Brigade of the Southern African Development Community. The brigade is part of the UN mission in DRC. MDF started participating in UN PSO in 1994. By the year 2010, about ten thousand commissioned officers and men had so far taken part in PSOs as either military observers (MILOB), Staff Officers, or Peace Keepers (Mambo 2010).

Military aid to the civil authority is one of the crucial peacetime roles that the MDF is currently involved; it is happening in three dimensions. Military Aid to other Government Departments that covers assistance provided by the MDF on urgent work of national importance or in maintaining supplies and services essential to life, health, and safety of the community. For instances, MDF is protecting endangered forest across the country and conduct border patrols (Kalua 2015).

The military is also involved in the provision of security through joint operations with other security agencies. According to Malawi Police Service (MPS), the MDF and

MPS signed a memorandum of understanding (MOU) “to foster a closer relationship between MDF and MPS in law enforcement. Therefore, each takes mutual advantage of the other’s skills, knowledge, training, research and development in the law enforcement field for the benefit of the general public in Malawi” (Malawi Police Service 2017). The cooperation and coordination cover joint operations and training, handling disciplinary matters involving the two departments, joint use of facilities and equipment, and exchange of personnel for training and operations.

Another peacetime activity of MDF is providing military aid to the civil community. The MDF uses its engineers to provide unarmed military assistance to prevent or deal with the aftermath of a natural disaster or significant incident or to assist government departments by either carrying out special projects of significant social value to the community or attaching individual volunteers to specific projects. The MDF engineers are involved in various civil construction projects following a Chinese government grant of construction engineering equipment. The MDF engineers seminal projects were the 11-kilometer road construction in Lilongwe Area 43, 21 kilometers Tsangano-Neno road and other road upgrading works within Blantyre city (Kapatuka-Mana 2018). Apart from the engineers, the MDF assist the surrounding civilian communities with medical services, education, and civilian employment in all its units. Similarly, the MDF assists communities with air and water transport whenever necessary through its maritime and air components.

Even though the MDF realizes that Malawi does not have an imminent external military threat, new challenges have emerged and will keep on emerging. The most significant external security challenge surrounds the controversy over Lake Malawi

border with Tanzania. Other internal security challenges range from political and religious intolerance, ethnic conflicts, terrorism, small arms proliferation, cross border crime, illegal immigrants, and non-traditional military threats such as HIV-Aids pandemic, poverty, environmental degradation, and disasters (Malawi Ministry of Defence 2009). Therefore, there is a need to prepare and develop a diverse range of capabilities to address these threats. As a “Way” to address the challenges, national defense policy outlines force modernization as a key priority. “In order to develop a versatile force, it is necessary that issues of human resource development, acquisition, and upgrading of equipment, force design, military doctrine, command and control structures, among others to be fully addressed” (Malawi Ministry of Defence 2009, 15).

According to the national defence policy document, for MDF to develop a versatile force it needs to find a way on how it can modernize its doctrine, organization, training, materiel, personnel, leadership and policies among others (Malawi Ministry of Defence 2009). However, presenting a holistic approach in meeting the objectives of force modernization is not easy. Therefore, in order to understand the modernization process, it is vital to consider the fundamental elements that are necessary for determining the capability of the military.

The critical measure of assessing the military instrument of national power is through military capability. Since countries exist in an environment where internal and external threats to security are both familiar and ever-present, the effectiveness of their coercive arms becomes the ultimate measure of power. Thus, the broader logical framework developed for examining national power applies by examining how national military establishments generate capable military forces. Tellis et al. argue that “the

framework for examining military capability as the output dimension of national power is patterned analogous to the larger framework for assessing national power” (Tellis, Bially, Layne, and MacPherson 2000, 133-175).

They further point out that the first way to find the military capability is to identify the strategic resources a military receives from the government it serves. The resource variable is important because it represents the seriousness of a country on its military instrument. However, while it is not straight forward that the input equals the output, some variables convert these resources into useful capabilities. These variables range from doctrine, organization, training, materiel, leadership, facilities, and policies. Finally, the variables are the capabilities of the combat force itself and convert into a spectrum of warfighting competencies used in a military operation by a commander (Tellis, Bially, Layne, and MacPherson 2000).

According to the World Bank, military expenditure data includes all current and capital expenditures on the armed forces including, peacekeeping, forces defense ministries and other government agencies engaged in defense projects (Pike 2014). Such expenditures include military and civilian personnel, including retirement pensions of military personnel and social services for personnel; operation and maintenance; procurement; military research and development; and military aid (in the military expenditures of the donor country). Military expenditure in Malawi was USD 35.7 million in 2016 and USD 43.5 million in 2017, but the average expenditure of 1968 to 2014 was USD 20.59 million. The all-time high was USD 60 million in 2013, and the record low was USD 5.6 million in 1969 (Trading Economies 2018). However, according to the CIA Fact book, Malawi’s military expenditure per gross domestic product between

2012 and 2016 was 0.61 percent in 2016, 0.7 percent in 2015, 0.89 percent in 2014, 1.24 percent in 2013 and 0.82 percent in 2012 (CIA 2011). The factors that influence the variations in defense expenditure needs an investigation to determine a suitable modernization process that corresponds to the pattern.

The Vision 2020 document outlines Malawi national goals and aspirations (Malawi Government 1997). The document outlines the desired end state of Malawi by the year 2020; however, Malawi Growth and Development Strategy (MGDS) sets out the medium-term priorities for achieving Malawi's medium to long-term ambitions and aspirations outlined in the Vision 2020. The MGDS is essential in the National Budget process and is fully cost based on parameters used in budget formulation. Alignment of MGDS to the National Budget is not a mere coincidence, but a necessary vehicle through which annual MGDS targets and goals are met (Malawi Government 2017). Unfortunately, in MDGS I and II the defense was not amongst the priority areas. However, MGDS III included defense and security but did not allocate resource parameters. Therefore, establishing strategic linkages between objectives and resources is critical for any military modernization process to work.

MDF's Current Military Capability

Doctrine and Policies

As a military term, Army doctrine is the fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives (HQDA 2014). FM 3-0 amplifies the definition and argues that doctrine is more than just principles, but a body of thought on how Army forces intend to operate as part of a joint force and a statement of how the Army intends to fight. It establishes a standard frame of

reference, including intellectual tools that Army leaders use to solve military problems (HQDA 2017).

The MDF inherited British doctrine as a bedrock guiding the organizational structure, staffing, and leadership. However, due to changing roles and establishment of new partners, the MDF general concept of operation embraces both British and American military doctrines. The re-alignment of the Malawi military establishment to that of the United States started from the mid-1980s due to two factors. First, under the Reagan Doctrine, the MDF was seen as a reliable partner in the United States' efforts to maintain domestic political stability (and orientation towards the West). As a result, during this time, U.S technical and financial assistance to the MDF increased significantly. Second, Malawi's commitment to PSO necessitated the U.S. support and technical commitment to MDF. Currently, MDF training focus and significant commitment attune to peacekeeping and local security initiatives (Charman 1997). However, there is still a need to develop a homogenous doctrine that defines MDF way of war. Therefore, a process of developing a homogenous doctrine and policies need an investigation.

The Organization, Personnel, and Leadership

MDF is a voluntary force; any Malawian aged eighteen years and above with a high school equivalent can enlist as a recruit. For officers, any Malawian with a college degree or equivalent can enlist as an officer cadet. Initial engagement is seven years for enlisted personnel and ten years for officers. The MDF has three major divisions: The Regular Defense Force, the Reserve Defense Force, and the Militia Defense Force. The regular force comprises of the units which are active on duty, while reserve force is composed of units that are no longer active. The militia comprises persons other than

members of the regular force or reserve forces trained for military purposes and called to serve only in emergencies (Malawi Government 2004). Therefore, MDF organization needs further investigation on its effectiveness.

The MDF is generally a professional and effective service but challenged by a vast leadership gap between the enlisted and commissioned officers (Pike 2017).

Throughout the 1970s, the force numbered a little over two thousand men. In 1987 when Malawi sent the first batch of soldiers (reported at four hundred) to Mozambique, the figure stood at 5,250, with the junior officer ranks swelling proportionately. This upward trend continued until the early 1990s. Between 1991 and 1993, on the eve of the democratic transition, the army increased in size from approximately 7,250 to 10,000 soldiers (Lwanda 1991).

Moreover, according to a 2012 census, there were 2,132,909 males and 2,043,925 females aged 16-49 of the workforce who were fit for military service (CIA 2012). Therefore, MDF has a vast pool of human resource that can be called upon when needed. However, understanding the factors that determine MDF strength fluctuation and leadership challenges need investigation in the study.

Training, Education, Research and Personnel Development

The rapid transformations in both technology and military art have resulted in a need for increasingly specialized institutions that focus on research, development, test, and evaluation (RDT&E) activities relating to combat (Tellis, Bially, Layne, and MacPherson 2000, 133-175). MDF has one college, which has a Peace Support Operations Training Center (PSOTC), Combat training, Staff training wing, Recruits, and

Cadets wing. This college offers a variety of courses up to a company level. MDF conducts the majority of Professional Military Education (PME) training in partner nations through military cooperation.

On the other hand, on an academic level, the Mzuzu University Centre for Security Studies is the only academic institution where officers learn and conduct research in strategic security studies. The undergraduate course prepares officers with professional knowledge of transferable skills in security sector management. The course enables the graduates handle emerging challenges in the security sector with regard to public safety and security, national security management, conflict prevention and resolution, counterterrorism, diplomacy and international relations, intellectual property rights, security sector reforms, among others (Mzuzu University 2018).

However, there is still a knowledge gap between commissioned officers and enlisted in MDF. Nonetheless, the gap is closing with the establishment of Sergeant Majors Academy. The U.S. Army introduced the first African Academy for the Sergeant Majors in Malawi (SMA) (NCO Journal 2014). MDF realized that for the discipline and professionalism to continue in the force, senior enlisted soldiers are supposed to be proficient and confident to lead. From the academy, graduates demonstrate a high level of good leadership, decision-making, and critical thinking.

Additionally, the MDF conducts training and exercises with foreign partners like the United States, the United Kingdom, France, Germany, and South Africa. The U.S provides the most peacekeeping support to the country. Malawi's participation in peacekeeping and humanitarian assistance operations in places like Rwanda, Burundi, the DRC, South Sudan, Liberia, and Ivory Coast gave it added combat experience and

readiness. For that reason, training, education, research and personnel development policies of MDF need proper analysis to determine the organization's priorities in this study.

Materiel and Facilities

MDF has land, air, and maritime components across Malawi but challenged by poor equipment serviceability, with some estimates put equipment serviceability at 20 percent (Pike 2017). The air wing has two bases, one in the south for fixed wing and another in the center for rotary wing. The air component is capable of transport and medical evacuation. However, there is a possibility to configure some of the airframes into combat aviation aircraft. The marine has boats and ships stationed in Monkey Bay in the south, and Chilumba in the north. The marine unit is capable of conducting patrols on the lake and intercept enemy ships. The land forces have two light infantry brigades with one airborne, engineer, artillery, and armor units. MDF has several training areas in Malawi, of significance, are the two major live firing ranges of the Viphya in Nkhatabay and Chikala in Zomba.

The German Government helped in the establishment of MDF Air Wing in 1976 with the delivery of six single engines Dornier Do-27s and eight Do-28 light twin engines in 1976-1980. Also, in the same year, the air wing received an Alouette III, an AS 350 and an AS 355 Ecureuil, as well as three SA 330 H/L Puma Helicopters from France. In 1986, MDF received a single BAe 125-800 aircraft, but between 1986 and 1989, it acquired four Dornier Do-228 light twin turboprops to allow the disposal of the older Dornier products. In 1990, the U.S. delivered two Douglas C-47s and PT6A turboprops (Pike 2014). MDF has a small navy because Malawi is a landlocked country. Malawi's

naval force only operates on Lake Malawi. The Malawi Navy dates back in the early 1970s. It started with the help of the Navy in Portugal that ceded part of its boats of the Nyasa Flotilla operating from the then Portuguese province of Mozambique. Patrol boats consist of one Namacurra-class harbor patrol boat (P 704 Kaning'a, formerly Y 1520) transferred from South Africa in 1988, one Antares-class patrol boat (P 703 Kasungu formerly Chikala) service craft, one unknown-type Landing Craft Mechanized (P 702 Chikoko I), twelve Buccaneer Inflatables Buccaneer Legend-type, rigid-hulled inflatable launches, and Zodiac interceptor boats (Wertheim 2007). Therefore, understanding the capabilities of the platforms is essential to this study.

Concepts–Important Thoughts and Arguments on Military Modernization

Fundamentally, understanding force modernization and the theory behind it is vital in this study. Modernization theory studies the process of social evolution and the development of societies (Gavrov and Klyukanov 2015, 707). Given the complexity that arises from tracing the multidimensional development of social processes, the goal of discovering a single definitive social theory of modernization is challenging. However, Harrison in his book on the modernization theory of sociology gives a definitive definition of modernization as a long, gradual process of social and cultural change considered as differentiation, a movement through defined stages from the simple to complex (Harrison 1988, 8).

Tellis, Szalwinski, and Wills go a step further in defining MM. They define it as “a means the relevant upgrade or improvement of existing military capabilities through the acquisition of new imported or indigenously developed weapons systems and

supporting assets, the incorporation of new doctrines, the creation of new organizational structures, and the changes in policies, leadership and education facilities to respond to the doctrinal changes” (Tellis, Szalwinski, and Wills 2017). The definition correlates with an army’s definition of force modernization, which states, “force modernization is the process of improving the Army’s force effectiveness and operational capabilities through force development and integration” (CAC 2018). Therefore, MM focuses on a process based on improving military capabilities and effectiveness; hence, the concept needs a further academic discourse in this thesis to determine on the starting points of modernization in relation to the size of the military, economic and cultural influences.

Nonetheless, the trigger to the modernization process is usually a shift or change in the national interest. National interest is “a country’s goals and ambitions, whether economic, military, cultural or otherwise” (Burchill 2005). The concept is an important one in international relations, where the pursuit of the national interest is the reason for the establishment and existence of a state. According to Morgenthau, the idea of national interest has two factors. One is rationally demanded and, therefore, out of necessity, the other is changeable and decided by situations (Morgenthau 1952). In understanding, the twofold function of national interest, one is provoked to understand the role of the military in international and internal politics. The military is one of the instruments of national power. According to Burchill, national power is “the sum of all resources available to a nation in the pursuit of national objectives” (Burchill 2005).

Fundamentally, the military instrument is an integral aspect of military capability to oppose external coercion through the application of force (Wade 2018). Therefore,

understanding the essence of the military as an instrument of national power is necessary for this study because it gives a better understanding of military capability.

Military capabilities allow countries to defend themselves against adversaries, foreign and domestic, while simultaneously enabling their state managers to pursue whatever interests they wish, if necessary, over and against the preferences of other competing entities (Tellis, Bially, Layne, and MacPherson 2000). Military capability is military power in action, as Peter Paret summarized it, “military power expresses and implements the power of the state in a variety of ways within and beyond the state borders, and is also one of the instruments with which political power is created and made permanent” (Paret 1989, 240). Military capabilities are always evolving to respond to national interests of and the threat the adversary poses to the nation.

Security threats involve not only common foes, such as other nation-states but also non-state actors. Examples of other actors are violent non-state actors, narcotic cartels, multinational corporations, and non-governmental organizations; some threats may also include natural disasters and events causing severe environmental damage (Romm 1993, 122). Therefore, an effective system necessary to manage military power by adjusting military capability to respond to the constant changes in national interest and threat is essential to the MDF.

Although warfare, violence, and armies are a matter of interest to political analysts, the academic investigation is inadequate. After World War II, the academic focus for most analysts and commentators were on military reforms, and the post-cold war on transformation (Bienen 2017). In almost all democratic countries, military reform is a prerequisite for successful civilian control. The issues of military structure, social

composition, its role as an interest group in foreign and domestic policymaking, and the impact of the military on domestic politics and economy, have been issues of concern in the twenty-first century (Burchill 2005). However, civilian authorities have challenges understanding the connection between the military as an instrument of national power and other elements of national power. The misunderstanding has led to a misrepresentation of military forces in strategic policy-making arenas. Therefore, a framework that allows the stakeholders to understand the relationship between the military and other elements of national power is necessary for coherent strategic guidance.

On the other hand, the precursor to understanding the process that connects stakeholders into a coherent direction; is the understanding of the MM evolution to the current state. The basis of MM has transcended through five stages of the Revolution in Military Affairs. Colin Gray mentions the five concept developmental stages of military modernization as Military Revolutions by Soviets, Military Technical Revolution, Revolutions in Military Affairs, Military Transformation, and then Military Modernization (Gray 1999). The Military Revolution is a radical change in military strategy and tactics with resulting significant changes in government. Michael Roberts introduced the concept in the 1950s as he focused on Sweden. He analyzed the European way of war caused by the introduction of portable firearms between 1560-1660 (Black 2008).

After that, the notion of military revolutions grew from Soviet writings of the 1970s and 1980s, notably a series of papers by Marshal N. V. Ogarkov, analyzing the revolutionary potential of new military technologies (Cooper 1994, 21). As Marxists,

Ogarkov and his colleagues were comfortable with the idea that “revolutions” drive history.” However, Andrew Krepinevich, an American defense analyst following Marx, argues that “what distinguishes revolution from evolution is recognition and acceptance of fundamental change by technology to the other elements involved” (Bodnar 1993). He introduced this change as a military technical revolution, which focused on technology, military systems, operational innovation, and organizational adaptation. Nevertheless, analysts quickly found an exclusive technological focus too limiting. Therefore, some proponents advocated for a more holistic concept of the military-technical revolution, which was known as revolutions in military affairs (McKenzie 1995).

According to Andrew Marshall, “A Revolution in Military Affairs is a major change in the nature of warfare brought about by the innovative application of new technologies which, combined with dramatic changes in military doctrine and operational and organizational concepts, fundamentally alters the character and conduct of military operations” (Andrews 1998). Revolutions in military affairs begin when the potential latent technological, conceptual, political, economic, social, and organizational changes that have occurred or are occurring, are recognized and converted to augment combat effectiveness.

The state often initiates a revolution in military affairs within its system. Therefore, a revolution in military affairs evolves to respond to the new threats present. Then in the late 1980s and early 1990s, because of the cold war, the concept of military transformation permeated the security arena. The aspect of the balance of power and security dilemma motivated the many military organizations to change the military

structure to compete with other countries, and that led to the transformation of military forces (Metz 1995).

However, Brennan defines military transformation as the adjustment of a nation's military to achieve a specified objective. He analyzes four significant issues: force structure, modernization, readiness, and sustainability to provide decision makers with recommendations on all aspects of planning and strategy to maximize the effectiveness, continuity, and innovation of a nation's force as it adapts to technological, cultural, and other significant changes (Brennan 2018). Currently, defense experts are talking of military modernization as a step further in the evolution cycle of force management.

Military modernization encompasses all the other conceptual stages by implementing the elements of change with an emphasis on improving military capability and effectiveness. It also acknowledges that it is a process, not an event. Secretary of the U.S. Army Mark Esper expressed the need of modernization in his inaugural speech as Secretary of the Army, "my second priority is Modernization – building greater capacity and capabilities in the longer term. Modernization means growing our operational force while maintaining quality, reshaping it to be more robust and successful in all domains, and modernizing it with the best weapons and equipment available to guarantee clear overmatch in future conflicts" (Esper 2017).

General Milley agreed with Secretary Esper when he outlined the same message on modernization as the Army focused on the future when he said, "For Future Army, we will do what it takes to build an agile, adaptive Army of the future. We need to listen and learn – first from the Army itself, from other services, from our interagency partners, but also the private sector, and even from our critics. Developing a lethal, professional, and

technically competent force requires an openness to new ideas and new ways of doing things in an increasingly complex world. We will change and adapt” (Milley 2015).

Even though MM has attracted brilliant thinkers, systematic strategic discourse remains rare. Many writers admit that broader questions need answers on the standard approach to the modernization process in global security. The earlier models of the modernization process are threat based. They hold an assumption of knowing the enemy and posturing the military to defeat that particular enemy. Now with the complexity of the security environment, threat-based modernization processes are elusive. However, on a positive note, many advanced militaries moved out of threat-based processes of force modernization to a capability-based approach. They are now asking, “What do we want the future military to be able to do?” rather than “What will new technology allow the future military to do?” (Metz 1995).

Models Other Countries Use to Modernize Their Militaries

The study assesses three processes of force modernization. The first is a force management process for the U.S. Army named the Force Management Model. The second one is the Framework model, a force management process developed for the UK defense. The third process is Capability Based Planning, which many NATO countries use, but for the sake of this study, the author uses Canadian guidelines and Serbian framework.

U.S. Army Force Management Model (AFMM)

According to “How the Army Runs,” a book on Force Management from the Army University, “U.S. Army Force Management is the process that allows the

Department of the Army to translate strategy into policies and programs that manage resources change across the total force to ensure the organization can deliver sustained land dominance capabilities” (AWC 2015). Therefore, the U.S. Army uses AFMM as a system to aid in examining specific force management processes and the interactions with various programs and actors within the Department of Defense.

There are seven distinct modules of the Army Force Management Model. The first is the strategy module, and this determines strategic and operational requirements. This module includes national, defense, joint, and Army laws, leaders, documents, and processes, including global force management demands. The second is the requirement module, which develops necessary capabilities in terms of doctrine, organization, training, material, leadership and education, personnel, facilities, and policy (DOTMLPF-P) solutions. This module includes the joint capabilities integration and development system (JCIDS) and Capability Based Assessment (CBA) (AWC 2015).

The third is the design module, which is responsible for designing organizations, developing organizational models, and documenting organizational authorizations; the two combined, make up the structure module. The fourth module is acquiring, and it is responsible for obtaining material solutions. The Defense Acquisition System (DAS) is at the heart of this module. The fifth module is authorization, which determines Authorizations. This module includes Total Army Analysis and planning, programming, budgeting, and execution. The sixth module is personnel development and is responsible for providing training, and distribution of personnel. The seventh and last module is distribution, which provides equipment to the force. This module presents the required capability to a Combatant Commander (CCDR) (AWC 2015).

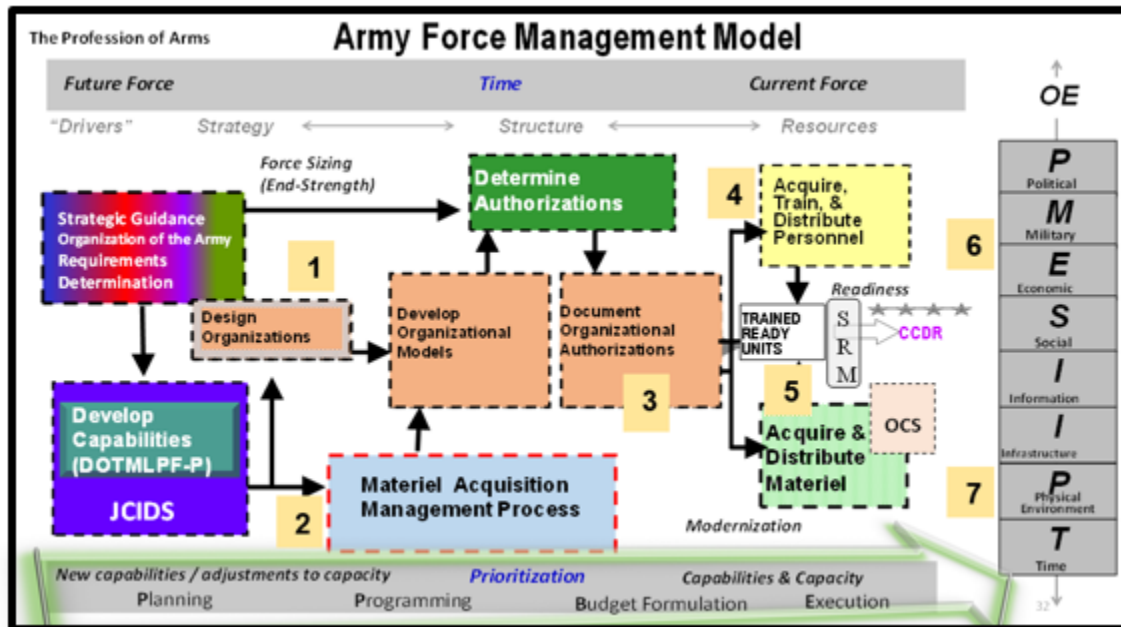


Figure 1. Army Force Management Model

Source: Department of Logistics and Resource Operations, *F100: Managing Army Change: Selected Readings* (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2018), 28.

The force management model shows the relationships of Army processes to each other and the primary Department of Defense (DOD) management processes. The underlying basis for this model is that force management, in its most straightforward context, is the management of change, using many interrelated and complex processes. Although the model depicts the flow of processes in a linear, sequential manner, it does not usually happen like that. History has shown, however, that eventually all of the steps must take place to produce a fully trained and equipped operational force at the right time and at the right place to support the Combatant Commander (AWC 2015).

In this model, strategic and senior leadership are the major players who provide leadership, resources, and guidance. Training and Doctrine Command (TRADOC), a key player, manages the process to determine warfighting capability requirements, conducting research and development, and provide necessary input to the force development process. The defense industry also plays an essential role in developing a material solution. The resulting products of force development, in turn, provide the basis for the force integrating functions of acquiring and distributing materiel, as well as acquiring training, and distributing personnel. This model highlights key aspects and relationships of actors of force management in the U.S. Army (AWC 2018).

Force management accomplishes the four broad lines of effort: First, capabilities development; the assessment of current capabilities versus future concepts to develop solutions across the DOTMLPF-P domains. Second, force development; this is a multi-step process that develops, priorities, resources, and documents organizations based on requirements identified under the capabilities-development function. The third is material development; this is a multi-phase process that develops and procures materiel for the force based on requirements identified under the capabilities-development function. Fourth is force integration; the process distributes personnel and equipment to build, train, and maintain readiness within the Army in support of combatant commanders' requirements.

The Framework Model

The University of Cambridge, Centre for Technology Management, designed the Framework Defense Modernization Model for the United Kingdom's Ministry of Defense. The principal aim of the framework process is to develop a single representation

of future military capability (Kerr, Paul, and Probert 2006). The Framework model consists of four concentric layers: building block layer, functional layer, effects layer, and influencers layer.

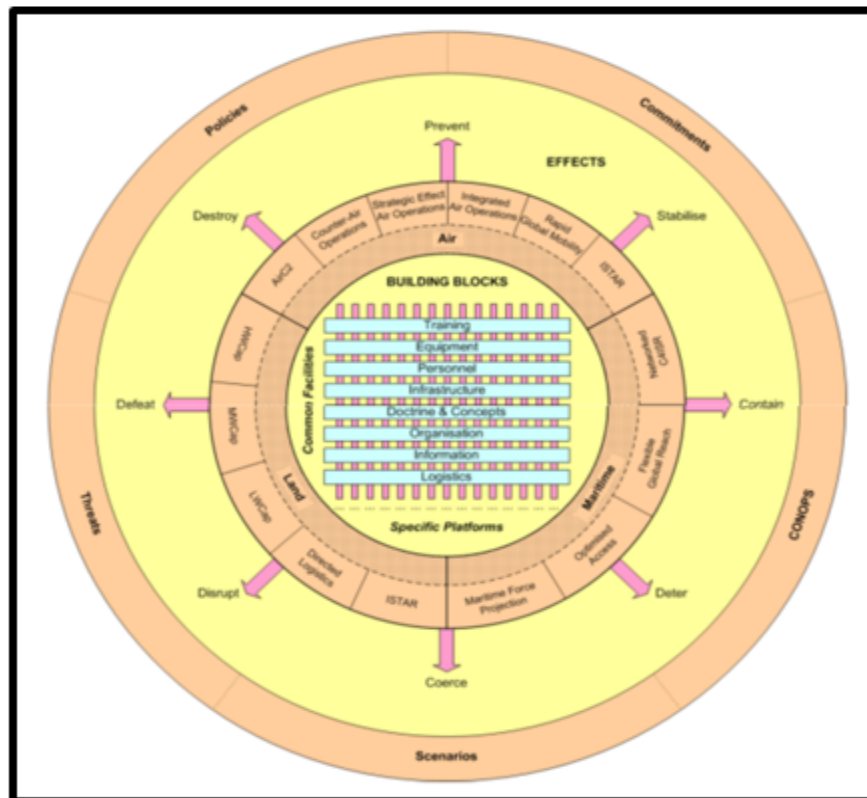


Figure 2. Framework Model

Source: Clive Kerr, Robert Phaah, and David Probert, “A Framework for Strategic Military Capabilities in Defense Transformation” (paper presented at the 11th International Command and Control Research and Technology Symposium, Cambridge, United Kingdom, 20-22 June 2006), accessed 23 December 2018, <http://www.dodccrp.org/events/11thICCRTS/html/papers/061.pdf>.

The framework consists of four concentric layers, as presented in figure 2. The Central Layer contains the basic “building blocks” of capability; there are two elements in this layer: a platform and the associated facilities that surround the platform.

The second layer depicts combat functions or “functional packages” of military capability. The functional package layer encapsulates the warfighting force structures together with the operational environment domains (land, maritime, and air). It bonds around the building blocks of platforms and necessary facilities (Kerr, Phaal and Probert 2006).

The third layer is essentially a third view with capability represented by an “effect.” In terms of defense modernization, the question that needs exploration by the defense community is what the required future effects are? For example, what are the effects that address the threat of Large-Scale Combat Operation (LSCO)? The three perspectives define the effect: strategic, tactical, and operational. The application of a combat function delivers a set of specific effects, as does the use of a particular platform.

The final layer in the architecture is the “influencers” layer (layer 4 in figure 2). Whereas layers 1 to 3 encapsulate capability by representing the different views, layer 4 is not a capability, but it categorizes the factors that have a direct influence on capability. These influencers include government policy, defense budgets, commitments, threats, scenarios, and concept of operations (Kerr, Phaal and Probert 2006).

The utilization of the framework allows the three stakeholder groups to have a shared understanding of what will constitute future military capability. Ultimately, the application of the framework intends to allow the stakeholders to enter discussions of the future capability requirements and to develop a visual representation of those future

capabilities such that there is a shared common understanding (Kerr, Phaal and Probert 2006).

There are three main actors in the Framework model; warfighter, government, and the industry. In this model, the government gives strategic leadership, resources, and guidance. Warfighter determines warfighting capabilities and effects, conducts research and development, and provides necessary input to the process. The defense industry plays a vital role in developing material solutions in the form of necessary platforms for the required capability. (Kerr, Phaal and Probert 2006).

The Framework process falls into four significant layers. Building blocks are the first generic architecture of the framework's concentric layer that outlines strategic platforms and shared facilities. The second layer is functional packages and outlines force structures and environments. The third layer is effects, and it describes the strategic, tactical, and operational environments. The fourth layer is of the influencers, and it explains policy, commitments, threats, scenarios, and concept of operations. The capability development focuses on the required effect and involves the three broad stakeholder groups of warfighters, government, and industry (Kerr, Phaal and Probert 2006).

Capability Based Planning

CBP is an approach designed by the Research and Development Corporation (RAND) to provide a framework to support force development and facilitate risk management. It focuses on goals and end-states and encourages innovation. It starts by asking questions regarding what needs to be done rather than what equipment needs replacing. "Capability-based planning approach provides a defense system with an

adequate response in facing uncertainty, economic constraints, and risks” (Stojkovic, Kankaraš, and Miti 2016). The CBP has seven distinct stages. It starts with the overarching guidance, identifies capability gaps, explores options, and ends with an affordable investment plan. Figure 3 below shows the steps of the CBP process indicating the inputs and the products of the process.

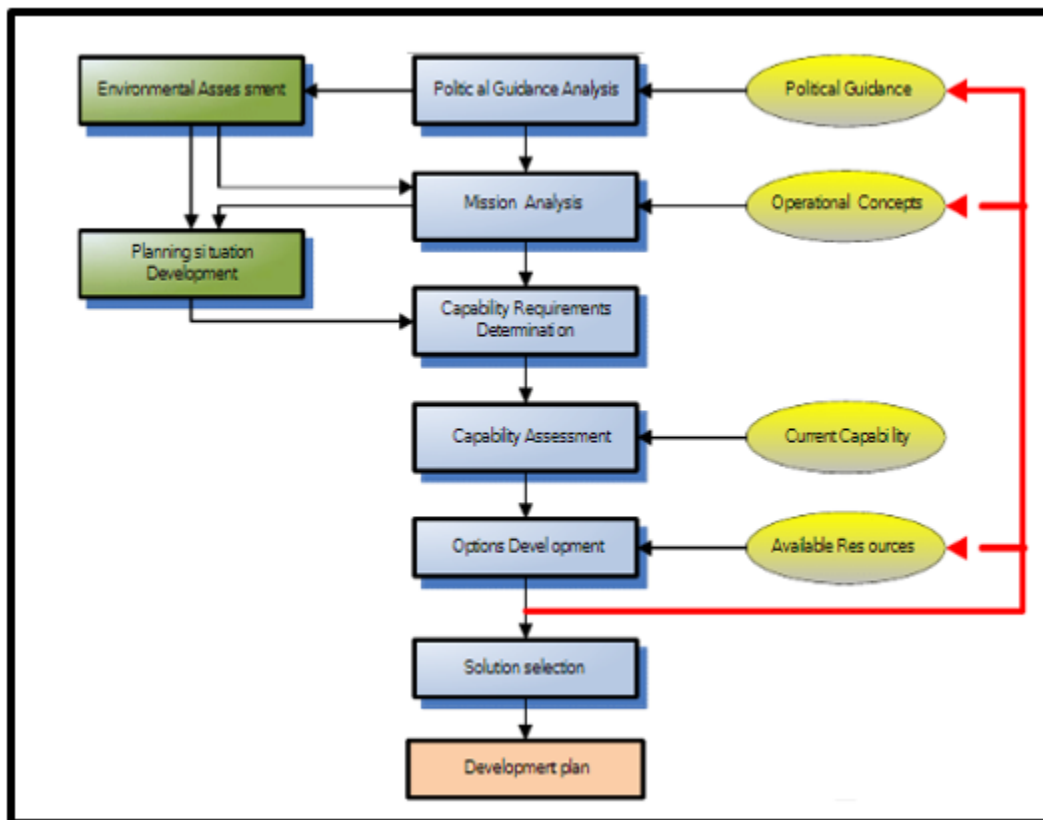


Figure 3. Capability-Based Planning Process

Source: Dejan Stojkovic, Milan Kankaraš, and Vlada M. Miti, “Determination of Defence Capability Requirements,” *Vojno Delo* 68, no. 8 (November 2016): 79.

Capability-based planning approach first analyzes the initial policy guidance and security environment to develop the future environment and determine the missions and

tasks of the defense. Modeling future environment identifies possible strategic situations and develop scenarios of security threats. Based on the developed scenarios, required capabilities are identified to carry out the mission and tasks of defense in the future. The second stage in the CBP process is the Environmental Assessment (EA). The significant inputs in this stage are national interests against which an environmental assessment affects (Stojkovic, Kankaraš, and Miti 2016).

In the third step, defense planners base their thinking on the results of the analysis to consider the influence of future environments on national interests and goals. In this phase, the aim is to identify future opportunities as well as risks and threats to national interests and goals. The last step in the environmental assessment is the development of a suitable number of strategic situations (Stojkovic, Kankaraš, and Miti 2016).

Capability Requirement Determination is the fourth and probably the most complex part of the CBP process and requires a combination of imagination and subject matter expertise. The purpose of this stage is to identify the types and quantities of defense capabilities required to accomplish a given task in a given situation. Requirements develop across the same set of periods for which planning situations have been identified (Stojkovic, Kankaraš and Miti 2016).

Capability Assessment is a stage that follows Capability Requirements Determination. The purpose of the stage is to assess the fulfillment of the previously identified capability requirements. Using the identified requirements and current capabilities as primary inputs, Capability Assessment produces a list of capability gaps that require solutions and indicates the period in which to bring those solutions. It may

also identify redundancies in capabilities that reflect inefficiencies (Stojkovic, Kankaraš, and Miti 2016).

Stojkovic and Bjørn stated that Options Development is the seventh stage of the CBP process, where defense planners develop options both material and non-material. The main inputs to this stage are capability gaps and available resources. The output from Options Development is a list of potential requirements and resources-based options.

Capability-Based Planning provides a method for identifying the levels of capability needed to achieve a strategic goal. With the assistance of scenarios, CBP explicitly connects capability goals to strategic requirements. These goals, in turn, allow for a holistic assessment of defense capability and hence the development of robust force options within the available budget to meet the range of contingencies expected by the government (The Technical Cooperation Program 2018).

There are two key actors in Capability Based Assessment decision makers and capability developers. Decision-makers are typically senior military leaders and government officials. Capability developers include the groups of planners who are required to implement the chosen initiatives and projects (Davis 2002).

CBP provides a framework to perform a particular task and provides the common elements of a military capability. CBP caters to a more diffuse and dynamic strategic environment, and links procurement decisions to strategic goals and encourages innovation. However, the process requires senior management commitment, the creation of an appropriate organizational context, and the allocation of appropriate resources. CBP has two fundamental differences from other forms of traditional Capability Planning.

First, it concentrates on what is needed to do rather than what the military has. Second, it attempts to move away from suggesting solutions too early in the process.

Summary

This literature review attempted to accomplish two goals. First, it captured some of the literature and research covered by other scholars on the subject. Second, it identified gaps and attempts to explore relevant methodologies addressing those gaps. However, due to time constraints and the amount of information available on this subject, the review does not claim to be complete and is subject to further development.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The primary question of this thesis is how the Malawi Defence Force (MDF) should modernize to respond to future threats. The purpose of the study is to determine the suitable modernization process that MDF might implement to modernize. The chapter introduces the thesis methodology with particular attention to the procedure embarked on getting answers to the thesis questions. It uses documentary inquiry to assess the subordinate question on the strategic framework that gives MDF guidance and determines its capability; then uses the Research And Development (RAND) military capability measurement process to assess the second subordinate question on what is the current MDF military capability. Lastly, the methodology uses the Suitability, Acceptability and Feasibility model to compare Army Force Management Model (AFMM), Framework model, and Capability Based Planning (CBP) to determine how MDF should modernize to respond to future threats to answer the primary question.

Declaration

The declaration of the investigator's contribution to the research setting is useful and positive rather than detrimental to a research process (Locke, Spirduso and Silverman 2013). Therefore, the author acknowledges that the methodology may have some subjectivity based on the personal assumptions and biases brought in by prior experiences and knowledge. The author is a commissioned officer in the MDF since 2005; therefore, his personal experiences have shaped his perceptions of the MDF. However,

understanding the context enhances the author's awareness, knowledge, and sensitivity to many of the challenges, decisions, and issues in this thesis.

Furthermore, the author is familiar with the structure, capabilities, and inventory of MDF and its roles. However, the author does not show the details of the data that he has interpreted for the capability assessment of MDF because the data is classified. Nevertheless, a general description of the interpretation is sufficient to understand the interpretation of the results. Besides, the author's exposure to the U.S. Army Force Management course and the AFMM during the Command and General Staff Course may have formed certain biases of the model in this study. However, every effort was made to ensure objectivity to understand the collected data despite the author's opinions and interpretations of his experiences.

Research Design

The study employs a worldview research philosophy design, which premises on basic sets of beliefs that guide action (Guba 1990, 17). This philosophy argues that reasoning is focused, goal-directed thought that starts with perceptions and existing knowledge and works toward new and valued knowledge. Reasoning, therefore, begins with knowledge and ends with the knowledge, opinions, beliefs, and certainties that one holds (Funk 2001). Therefore, the thesis uses available knowledge in seeking a reasonable and goal-directed modernization process that best fit the MDF. Furthermore, the study holds transformative worldview research inquiry that provides political and social action to marginalized societies to raise their consciousness and advance change (Mertens 2010). In the same way, the study seeks to find a better way of improving the MDF combat effectiveness under constrained financial support.

Approach

The research approach is qualitative. “Qualitative research focuses on the process and enables one to make sense of reality, and develop explanatory models and theories” (Creswell 2013). The intent of qualitative research is mostly an investigative process where the researcher gradually makes sense of a social phenomenon by contrasting, comparing, replicating, cataloging, and classifying the object of study (Miles and Huberman 1994). The study tries to determine the suitable process of modernization amongst numerous processes. Therefore, it focuses on the process that is occurring as well as the outcome. Marshall and Rossman suggest that a qualitative approach entails a new design in its negotiated outcomes of realities that the researcher attempts to reconstruct (Marshall and Rossman 2011). Therefore, a qualitative approach is suitable for this thesis because it aims at an outcome of which has immediate application and is of practical use to the MDF.

Methodology

The thesis further uses a case study methodology to compare the three case study models of the modernization process. As described by Cupp, case studies are a useful method for conducting qualitative research in problem areas that are human-centric, dynamic, volatile and contain a mix of stakeholders, interests, variables and information concepts that demand a deep understanding of the context in order to produce informed policy choices (Cupp 2018). Although case study methods remain a controversial approach to data collection, they are widely recognized when seeking an in-depth explanation of social behavior (Zainal 2007). Therefore, through case study methods, this

thesis goes beyond the quantitative statistical results and explore the practical method of modernization through the various actor's perspective.

Data Collection

Documentation review is the data collection method of this thesis. A documentary review allows for a broad interpretation of the facts (Creswell 2013). The information for this thesis comes from various sources of literature available from open sources.

Therefore, no generation or outside collection of external data was required. One disadvantage inherent to this method is difficulty in getting quality data especially, during the discovery phase of the thesis. Another disadvantage of this method is that the data restrict the researcher to information that already exists (Marshall and Rossman 2011).

Data Analysis

Data analysis is an ongoing process during research. Creswell claims that qualitative data analysis primarily entails classifying things. He further argues that it involves organizing and preparing data; an initial reading through the information; coding the data; developing from the code description and thematic analysis; using computer programs; representing the findings in tables, graphs, and figures; and interpreting the findings (Creswell 2013). Data analysis in this thesis proceeds hand-in-hand with data collection and the write-up of findings.

The data collected is processed into rows and columns in a table and format charts for analysis. The thesis uses tables to illustrate selected variables and comparison of variables. Tables and charts make side-by-side comparisons of data relevant to the research and depict the estimated points for each (Creswell 2013). The analysis also uses

matrices to establish weighted numeric values to the variables. Matrices provide a vivid portrait of varied narrative forms of the process that is occurring as well as the product (Creswell 2014, 235). The author uses “+” under the strategic direction analysis to show that the document depicts the strategic element “—” denotes an absence of the element, and “0” shows the partial presence” of the element. It also uses combat effectiveness graphics to depict the competency levels of MDF components under the current MDF capability. According to FM 101-5-1, Operational Terms and Graphics, the color code GREEN indicates that the component is at 85 percent or greater strength (combat capable). AMBER indicates that the component is at 70 to 84 percent strength (combat capable with minor deficiencies). RED indicates that the component is at 50 to 69 percent strength (combat ineffective, unit has major losses or deficiencies). Finally, BLACK indicates that the component is at less than 50 percent strength and requires reconstitution before the next mission (Pike, 2000). The scale “1” to “3” depicts suitability, acceptability and feasibility levels of models where “3” is good, “2” is better, and “1” is best.

Furthermore, the thesis uses NVivo software to validate the comparative analysis of the models within context, process, content, and actors’ codes. NVivo is a qualitative data analysis (QDA) computer software designed for qualitative researchers working with rich text-based information (McNiff 2016). The software provides deep levels of analysis required in this thesis.

Data Interpretation

While data analysis focuses on categorization, abstraction, comparison, dimensionalization, integration, iteration, and refutation data interpretation focuses on a

critical understanding of the data (Creswell 2013). The thesis uses metaphor and other literary devices as models for understanding the meanings, patterns, and how systems of meanings reproduce meaning. It uses the *policy analysis triangle*, *Ends, Ways and Means* analytical model, *Isaac's military capability measurement* model, and *Suitability, Acceptability, and Feasibility (SAF)* model for data interpretation. Data interpretation suggests the purpose of the descriptions to stimulate discussion about how researchers using qualitative analytical techniques arrive at conclusions and make sense of the data (Spiggle 1994, 491).

Data Evaluation

The evaluation of quantitative research frequently depends on judgments based on the “holy trinity” of objectivity, reliability, and validity (Spencer, Ritchie, Lewis, and Dillon 2003, 59). However, this study uses the SAF model by Johnson, Scholes, and Whittington to evaluate and explore the primary question. This strategic evaluation approach provides a logical and comprehensive way to manage questions on strategic choices (Johnson, Scholes, and Whittington 2008). However, apart from the SAF, other models are Lynch and Thomson models. Lynch model uses consistency, suitability, feasibility, validity, business risk, and attractiveness to stakeholder. Thomson model uses appropriateness, desirability and feasibility as selection criteria (Johnson, and Scholes 2010).

Nevertheless, the study opted for SAF because its application directly evaluates necessary elements of the study to answer the primary question. Suitability evaluates the extent to which the modernization process model is appropriate for MDF. Feasibility evaluates the extent to which the modernization process model is practicable. The

acceptability element evaluates the modernization process models by examining at least two criteria: financial aspects and the extent to which the choice fits in with the actors.

Research Reliability and Validity

Reliability refers to the extent to which the same answers can be obtained using the same instruments more than one time (Babbie 2010, 159). The study uses multiple methods of data collection to remove subjectivity. It also uses NVivo software in the analysis to eliminate biases and validate the results. Furthermore, in ensuring the internal validity, the thesis uses rich, thick, detailed descriptions so that anyone interested in transferability has a robust framework for comparison. Rich, thick description conveys the setting and gives the discussion an element of shared experiences, or offer many perspectives about a theme, and the results become more realistic and more vibrant (Merriam 1998). Three data collection and analysis methods are used to ensure triangulation. Triangulation of data collection and analysis strengthens reliability as well as internal validity (Creswell 2014, 252). Finally, data collection and analysis summaries are in detail to provide a clear and accurate picture of the methods used in this study. All phases of this thesis were subject to external scrutiny by MMAS peers, committee members and experienced external auditors in the MDF. The external audit is necessary so that the study resonates with people other than the researcher (Creswell 2014, 252).

Procedure

The study adopted a case study approach. The first step in this methodology is to answer the first subordinate question of how does MDF determine strategic guidance on its capability development. The study reviews collected data to determine the external

and internal factors that affect the strategic defense framework. It uses the Ends, Ways, and Means framework to analyze the data. According to Lykke, the framework provides balance and linkages between the desired end (objective), selected ways (method) and means (resources) to obtain the End (Eikmeier 2007). The study analyzes the Constitution of Malawi, National Security Policy (NSP), Defence Policy, MDF Act 2004, Vision 2020, and Malawi Development Growth Strategy papers. These documents are analyzed using documentary analysis tool in order to establish themes of strategic guidance for MDF in terms of “Ends, Ways, and Means”. Then the themes are assessed using Ends, Ways, and Means model to determine the strategic balance of objectives, policies, and resources. The themes are summarized in a table to demonstrate documents’ content and supporting element. Below is the table used to present the summary of the results.

Table 1. Strategic Documents and Direction Provided			
Strategic Documents	Strategy Elements		
	End (Objective)	Way (Policies)	Means (Resources)
Constitution			
NSP			
NDP			
Vision 2020			
MDGS			
Total			
Criteria: “+” shows that the document depicts the strategic element and “—” denotes the partial presence of the element, and “0” shows the absence of the element.			

Source: Created by the author.

The second subordinate question addresses the current MDF capabilities to determine the required level of capability. The documentary analysis is used to establish the level of Malawi government commitment on resourcing the military and reasons that motivate military expenditure in Malawi. Then, the study uses the RAND Capability Measurement Framework to determine the current MDF competencies and then assess the capability of land, air and maritime components to determine the current MDF capability. Figure 4 below is a framework used to assess the current capability of MDF in terms of land, air, and maritime components to fulfill the roles and tasks.

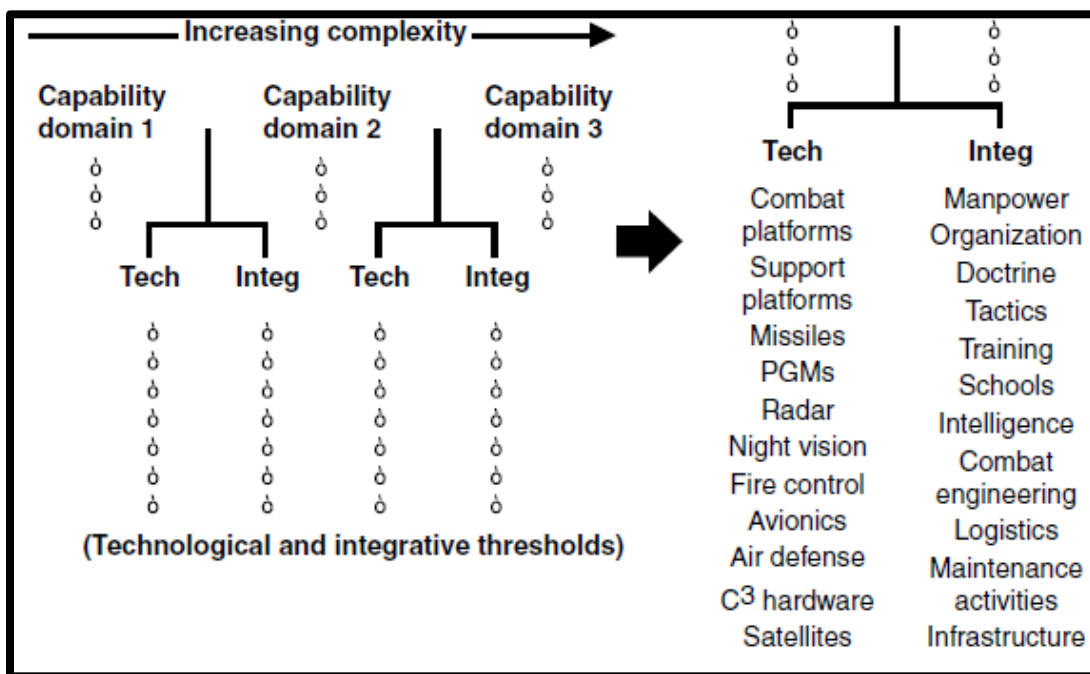


Figure 4. RAND Military Competencies Measurement Framework

Source: Ashley J. Tellis, Janice Bially, Christopher Layne, and Melissa MacPherson, "Measuring Military Capability," in *Measuring National Power in the Postindustrial Age* (Santa Monica, CA: RAND Corporation, 2000), 159.

In the study, the independent variables are two, technology and integrative variables. Under integrative variables, there are four major categories, which are Doctrine and Policies; Organization, Personnel, and Leadership; Training, Education, Research and Personnel Development; and Materiel and Facilities. Table 2 illustrates the element and questions to determine the finding.

Table 2. Integrative Competency Assessment Matrix	
ELEMENT	QUESTIONS
Doctrine and Policies	- Is there a standard own formal military doctrine? - How is military's access to national leadership? -What is the density of foreign military-to military relations? - What is the potential and capacity for innovation?
Organization, Personnel, and Leadership	- What is the size of the total force and breakup between active and reserve components? - What are the services and quality of leadership the distributed across the services? - What is the educational level of both the officer's corps and the enlisted ranks? - What is the size and quality of the manpower pool available?
Training, Education, Research and Personnel Development	- Does the force adequately train its military personnel in the combat and combat support tasks? - How is the quality of these training comparable to those in the country's peer competitors? - Are there any academic institutions, which specialize in training soldiers? - Are there specialized institutions that focus on research activities relating to combat?
Materiel and Facilities	- How are bases and installations arrayed and their quality? - What is the quality of warfighting function assets – protection, movement and maneuver, intelligence, sustainment, fires, and command and control?

Source: Modified by the author using Ashley J. Tellis, Janice Bially, Christopher Layne, and Melissa MacPherson, "Measuring Military Capability," in *Measuring National Power in the Postindustrial Age* (Santa Monica, CA: RAND Corporation, 2000), 133-176.

From the Integrative Assessment results, the study incorporates technology variable to evaluate current Land, Air, and Maritime components of MDF. This guides to investigate the overall current MDF capability. The study uses standard military tasks from Rand capability measurement model extrapolated from Universal Joint Task List (UJTL) to determine the level of military capability. See Appendix A for details. Table 4, below depicts the summary from the capability analysis.

Table 3. Capability Assessment Summary Matrix			
Elements	Military Force Components		
	Land	Air	Maritime
Technology			
Doctrine and Policies			
Personnel, Organization, and Leadership			
Training, Education, Research, and Personal Development			
Facilities and Material			
Average Score			
Total Average Score			
Score Description			
GREEN indicates that the component is at 85 percent or greater strength AMBER indicates that the component is at 70 to 84 percent strength RED indicates that the component is at 50 to 69 percent strength BLACK indicates that the component is at less than 50 percent strength			

Source: Created by the author.

Then the primary question, how should MDF modernize to respond to future threats, compares three case study models of AFMM, Framework, and CBP. The study uses the *Walt and Gilson policy analysis* framework to analyze the models. The tool offers a useful and straightforward analytical model that analyzes the concepts of context, content, process, and actors. For this study, context refers to the factors that create the

requirements to carry out MM. Content focuses on the objectives of the model (what it aims to do), while the process discusses the steps in the implementation of the models. Finally, the study analyzes actors as key players in the process and their interaction within the given process. Further analysis is done using NVivo software to compare levels of interaction of the variables in the models. Below is the depiction of the critical elements that the model analyses.

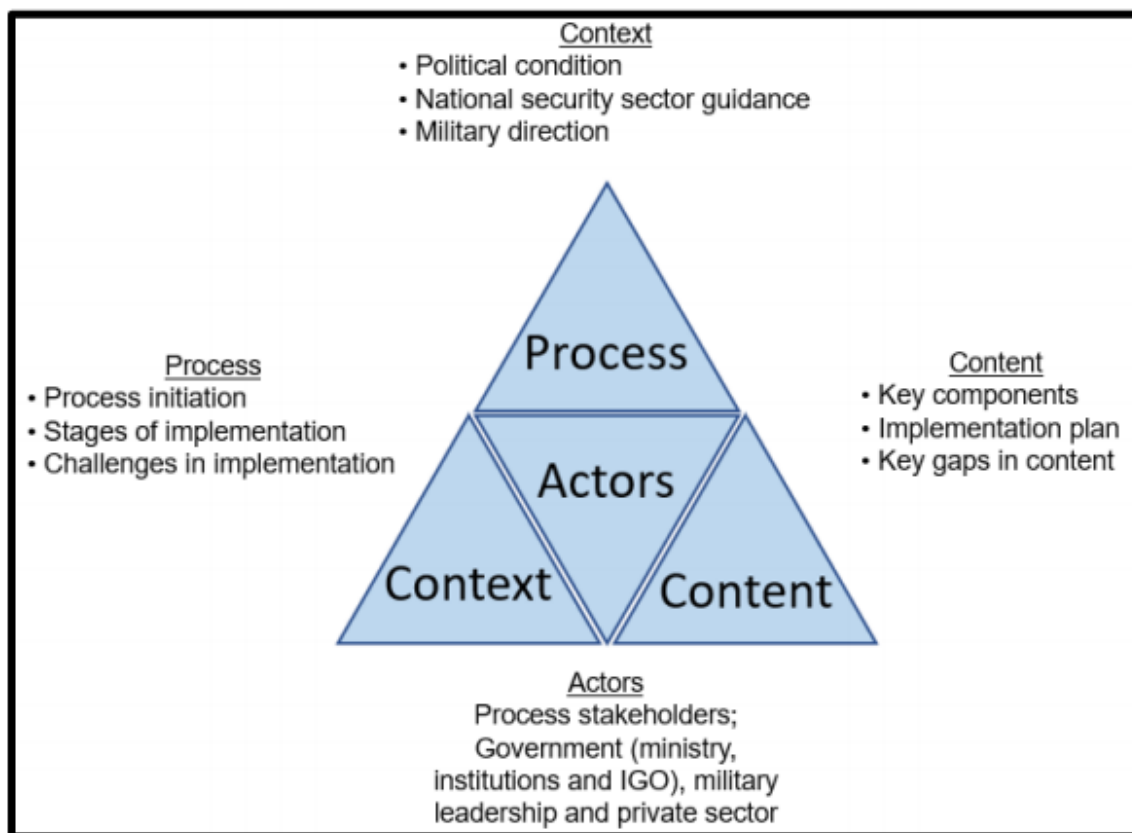


Figure 5. Modified Walt and Gilson Policy Analysis Triangle Model

Source: Modified by the author using Gill Walt and Lucy Gilson, “Reforming the Health Sector in Developing Countries: The Central Role of Policy Analysis,” *Health Policy and Planning* 9, no. 4 (September 1994): 354.

Lastly, the study uses Gerry Johnson, Kevan Scholes, and Richard Charles Whittington's, Suitability, Acceptability, and Feasibility model to evaluate the case studies to determine the plausible context on which MDF modernization process should base. Johnson, Scholes, and Whittington argue that a strategy must satisfy these three criteria of suitability, acceptability and feasibility before it can be successful (Johnson, Scholes, and Whittington 2008). Because of this, the use of a SAF strategy model is an effective way to weigh all options fairly.

Table 4. Suitability, Feasibility and Acceptability Key Questions	
FRAMING QUESTIONS	
- What is the model level of implementation? - What level of government or institution will implement? - How does the policy model work? - What are the objectives of the model? - What is the legal landscape surrounding the model? - What is the historical context? - What are the experiences of other jurisdictions? - What is the value-added of the model? - What are the expected short, intermediate, and long-term outcomes? - What might be the unintended positive and negative consequences of the model?	
CRITERIA	QUESTIONS
Suitability *Potential for the model to facilitate changes in strategic policy, organizational culture, and interaction among actors in modernizing MDF.	- How does the model address the problem or issue? - What is the magnitude, reach, and distribution of benefit and burden? - Are there gaps in the data/evidence-base?
Acceptability *Comparison of the costs to enact, implement, and enforce the policy with the value of the benefits.	Budget - What are the costs and benefits associated with the model, from a budgetary perspective? Economic - How do the costs compare to the benefits? - How are the costs and benefits distributed? - What is the timeline for costs and benefits? - Where are there gaps in the data/evidence-base?
Feasibility *Likelihood that the model can be successfully adopted and implemented.	Strategic - What are the current political forces, including political history, environment, and policy debate? - Who are the actors, including supporters and opponents? - What are their interests and values? - What are the potential risks associated with the model? - What are the potential impacts of the model implementation on other sectors and high priority issues? Operational - What is the resource, capacity, and technical needs in developing, enacting, and implementing the model? - How much time is needed for the process-model to be enacted, implemented, and enforced? - How scalable, flexible, and transferable is the model?

Source: Modified by the author using Gerry Johnson, Kevan Scholes, and Richard Charles Whittington, *Exploring Corporate Strategy* (Essex, England: Pearson Education Limited, 2008).

Within the perspective of suitability, the researcher checks whether the option considered is suitable for the goal. The question asked is what desired effect does the option have (derived from capability requirement)? Within the perspective of feasibility, the researcher checks whether the option considered is in line with the opportunities that the MDF has at its disposal (derived from the strategic guidance and current capability analysis). Here the author checks whether the option will be successful or not. Some of the factors considered are: is the option financially viable? Are the expectations realistic? Are the right resources present? Is the right knowledge available? Is the option ethical? Are there no legal barriers? When looking at the strategic option from the perspective of acceptability, the author looks at the external factors (derived from model comparison). Often more significant consideration is about the willingness of the actors to pay for the model implementation. Then the author assesses each model as depicted in the table below:

Table 5. Model Analysis				
CRITERIA	SUITABILITY	ACCEPTABILITY		FEASIBILITY
Scoring Definitions	3: small policy reach, organization effect size, and impact of actors' interaction 2: small policy reach with a large effect on organizational culture, Impact on actor's interaction is minimal 1: large policy reach, organizational effectiveness, and impact of actors' interaction	3: High costs to implement 2: Moderate costs to implement 1: Low cost to implement	3: costs are high relative to the benefits 2: costs are moderate relative to benefits (benefits justify costs) 1: costs are low relative to benefits	3: No-small likelihood of being implemented 2: Moderate likelihood of being implemented 1: High likelihood of being implemented
		Budget	Economic	
AFMM	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes / No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes / No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes / No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes / No)
FRAMEWORK	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)
CBP	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)
Scores Report	AFMM	FRAMEWORK		CBP

Source: Modified by the author using Gerry Johnson, Kevan Scholes, and Richard Charles Whittington, *Exploring Corporate Strategy* (Essex, England: Pearson Education Limited, 2008).

Reporting the Findings

Thick description is used to report a holistic picture of the suitable Military Modernization (MM) model which, MDF might adopt in order to respond to future

threats. Thick description, details the account of the thesis explicitly in a pattern that shows the context of cultural and social relationships (Holloway 1997). Furthermore, Miles and Huberman denote the importance of creating a data display and suggest that narrative text is the most common form of display for qualitative data (Miles and Huberman 1994). Therefore, the findings are presented in descriptive, narrative form rather than as a scientific report because this is a naturalistic study. The study summarizes the results of the comparison of the models in a table, followed by a detailed description of the results. The table below depicts a summary of the model's comparison.

Table 6. Modernization Process Models Evaluation Matrix			
Evaluation Criteria	Modernization Process Models		
	AFMM	Framework	CBP
Suitability			
Acceptability			
Feasibility			
Scale "1" to "3;" where "3" is good, "2" is better, and "1" is best.			

Source: Created by the author.

Summary

This research methodology presents a method of study to determine the MDF modernization process to respond to future threats. The chapter described steps taken to obtain information needed to address the primary and secondary questions. Further, on, the chapter identified tools it employed in developing a framework to answer the primary question of how MDF should modernize.

CHAPTER 4

ANALYSIS

Introduction

The primary question of this thesis is how the Malawi Defence Force (MDF) should modernize to respond to future threats. The purpose is to determine the suitable modernization process that MDF might implement to modernize. This chapter identifies the findings from all the data gathered during the research to answer the primary question. First, the chapter answers the first subordinate question on the strategic framework that gives MDF guidance. It uses documentary analysis to analyze various documents that relate to MDF's strategic direction by identifying themes to validate "Ends, Ways, and Means" analytical model. Research and Development (RAND) military capability-measurement framework is used to answer the second subordinate question on what is the current Malawi military capability? Then, using the answers in subordinate question one and two, the study compares U.S Army Force Management Model (AFMM), Framework, and Capability Based Planning (CBP) to determine a suitable model for the MDF modernization process. The study uses the Policy Triangle Framework adapted from Walt and Gilson and NVivo analysis software to provide the framework for the analysis of the models. The thesis employs Gerry Johnson, Kevan Scholes, and Richard Charles Whittington; Suitability, Feasibility and Acceptability Strategy Analytical Framework for models evaluation. The chapter concludes by answering the primary question of how MDF should develop a modernization process by outlining inferences from the comparison and recommend a model that can be a basis for a plausible process.

Findings

MDF Strategic Guidance and Resource Allocation

Malawi constitution provides the constitutional mandate for the establishment of MDF under section 160 (Malawi Government 1994). The Constitution provides the legal basis for the roles, missions, and organization of MDF. Furthermore, MDF is governed by as an act of parliament under chapter 12:01 of the laws of Malawi. The act provides for “the establishment, administration, recruitment, conditions of service, training, command, and discipline of the Defence Force of Malawi” (Malawi Government 2004).

On the other hand, national security policy provides the framework from which the national security apparatuses operate. The National Security Policy provides a general description of the aspired goals that the security sector should endeavor to achieve or protect. The policy outlines protection of territorial integrity in an ever-changing environment against both internal and external threats as the vital interest which subsequently MDF takes as a significant role of the Defence Force (Malawi Government 2017b). The Ministry of Defence derives its mandate from this objective to formulate National Defence Policy. The National Defence Policy provides a framework to guide the functions of MDF in pursuit of national interests (Malawi Ministry of Defence 2009). Apart from these documents, there is no strategic document on the part of the military that translates the defence objectives into achievable military tasks and objectives in the form of “Ends, Ways, and Means.”

Despite defending the country, one main activity of MDF is Peace Support Operation (PSO). MDF has one battalion of eight hundred and fifty soldiers in the Democratic Republic of Congo (DRC) under Force Intervention Brigade (FIB) of the

Southern African Development Community (SADC). The brigade is part of the United Nations (UN) mission in DRC. However, the study did not find any policy or strategic document on the part of the Malawi Government and MDF outlining detailed aspirations for MDF involvement in PSO apart from the constitutional mandate and international obligation.

One other crucial peacetime role that the MDF is currently involved is rendering military aid to the civil authority. The aid to civilian authorities happens through military aid to other government departments; the provision of security through joint operations with other security agencies; and military aid to the civil community. However, no further strategic direction informs operational guidance to the roles. The study only found operation orders, memorandum of understanding, and related documents at operational and tactical levels.

Similarly, the study found out that government resource allocation to MDF has an incomplete strategic connection with national budget parameters. Malawi Growth and Development Strategy (MGDS) sets out the medium-term priorities for achieving Malawi's medium to long-term ambitions and aspirations outlined in the Vision 2020 (Malawi Government 2017a). The MGDS is essential in prioritizing resources within the various government competing demands. The MGDS is formulated using national budget parameters. The current MGDS III sets out three peace and security goals (Ends) of Malawi between 2017 and 2022. The strategy outlines improving methods of community, regional and international security; and, development of the profession and advanced security as the critical military outcome. It further reveals that the provision of military assistance to civil authority; community integration; promotion of regional and

international order as other priority areas for MDF. On the methods (Ways) the MGDS states that Malawi should maintain healthy, well trained, equipped, a gender-sensitive combat-ready force which is sustainable (Malawi Government 2017a, 65). Unfortunately, there is no resource allocation (Means) in the strategy to achieve the goal (End) using the stated method (Means).

Table 7. Strategic Documents and Direction Provided			
Strategic Documents	Strategy Elements		
	End (Policy)	Way (Policies)	Means (Resources)
Constitution	+	—	—
NSP	+	0	—
NDP	+	0	—
Vision 2020	+	—	—
MDGS	+	+	—
Criteria: “+” shows that the document depicts the strategic element and “—” denotes the absence of this element, and “0” shows the partial presence of the element.			

Source: Created by the author.

Table 7 depicts that all five strategic documents spell out the defense objectives, roles, and expected end of the MDF. However, no document presents a holistic strategy to inform Ends, Ways, and Means strategic construct. Strategy generally involves setting goals, determining actions to achieve the goals, and mobilizing resources to execute the actions (Johnson, Scholes, and Whittington 2008). Nonetheless, no document describes how the ends (goals) can be achieved by the means (resources) utilizing the identified ways (method). Therefore, there is no security strategy to inform the national defense

strategy, which subsequently informs military strategy. For that reason, the MDF does not have any strategic document guiding its operation.

MDF Capability Measurements

The study found that the attempt to determine military capability is proven difficult. While several models attempt to measure various aspects of war-fighting capability, the multiplicity of models and approaches suggests that there is no consensus regarding what constitutes an acceptable measure. Nonetheless, the study uses inferences from Rand Military Capability Measurement Model to provide a capability assessment of MDF. First, the author examines the level and trends of the defense budget and military expenditure. Second, the study investigates the MDF's combat competencies. Lastly, the study measures military units'/components' ability to accomplish combat missions in order to determine the level of military capability in MDF.

Defense Budget and Military Expenditure

The size of the defense budget is, in principle, the most general, single measure of the resources provided for the military by its political masters. The size of the defense budget serves to identify the relative importance of the coercive arm in comparison to other organs of state, and it conveys a general sense of the size of the military establishment in absolute terms. Malawi's military budget, as of 2017, stood at 0.6 percent of the GDP. Military Expenditure in Malawi increased to USD 43.50 million in 2017 from USD 35.70 million in 2016. Military expenditure in Malawi averaged USD 20.59 million from 1968 until 2017, reaching an all-time high of USD 60 million in 2013 and a record low of USD 5.60 million in 1969 (Trading Economies 2018). However, the

bulk of MDF expenditure goes towards keeping the forces supplied with food, water, fuel, and other recurring transactions. The budgetary support for capital investment on defense capability development is minimal.

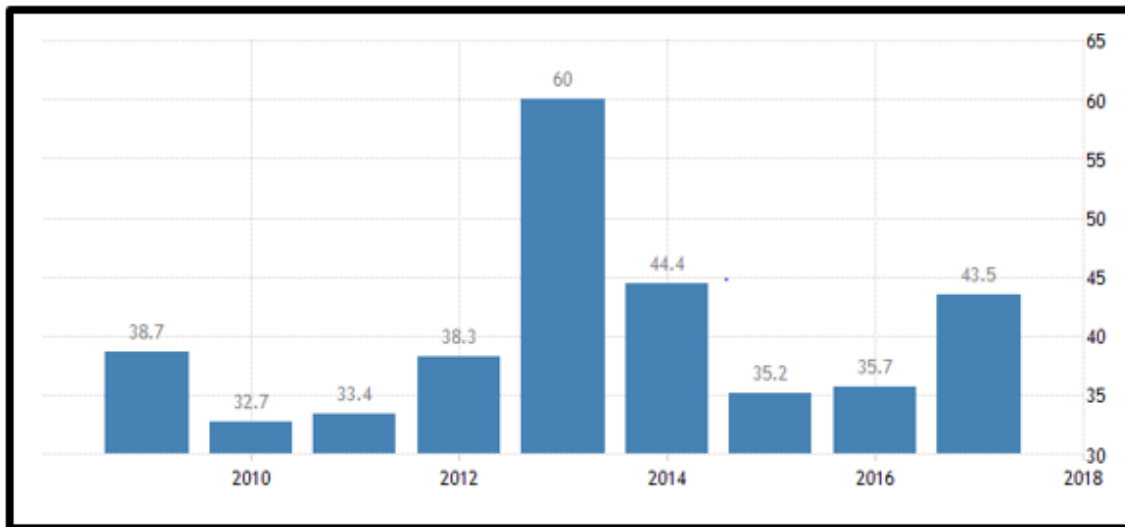


Figure 6. Malawi Monetary Military Expenditure (Million US Dollar)

Source: Trading Economics, “Malawi Military Expenditure,” accessed 28 December 2018, <https://tradingeconomics.com/malawi/military-expenditure>.

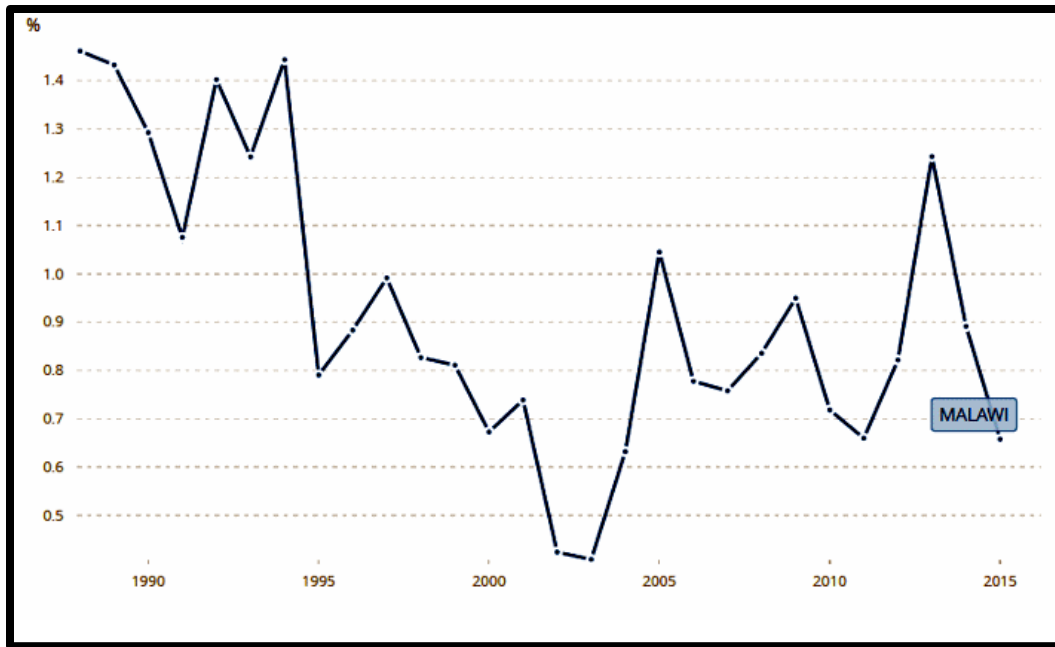


Figure 7. Malawi's Military Expenditure GDP (Percent)

Source: Global Security, "Malawi - Military Spending," 3 May 2017, accessed 28 December 2018, <https://www.globalsecurity.org/military/world/africa/mw-budget.htm>.

The evidence from figure 7, reveals that the defense sector received substantial financial support late 1980's to early 1990s. However, severe reduction of defense budgets started after 1994. The study argues that the military expenditure increased between late 1980 and early 1990 due to the military involvement in Mozambique dubbed operation KWAENI. Then, lowered after 1994 because of the reforms that happened in the military after multiparty democracy in 1994. The new set-up of checks and balance through civil-military relations allowed objective control of the military, thereby subjecting the defense expenditure to serious scrutiny.

Furthermore, the changes in political systems from an authoritarian regime to democracy necessitated the opinion that the military was not a priority area amongst the

many identified competing demands. However, figure 6 above depicts a sharp increase in defense expenditure in 2013. The researcher argues that the increase in military expenditure in 2013 was due to the threat of war with Tanzania over Lake Malawi. Thereby, the military became a priority and increased its capabilities. Therefore, the study concludes that Malawi's military expenditure for capability development increases when the military is involved in an operation, or there is a credible national security threat.

MDF Combat Competency Measurements

Doctrine and Policies. The MDF inherited the British doctrine. However, due to American influence, the doctrine is now a fusion of British and American. The MDF follows U.S operating concepts in PSO because it is a significant training partner in PSO.

Nonetheless, traditionally, MDF follows the British doctrine but does not have a formal written doctrine. Similarly, MDF has the Standard Operating Procedure (SOP) and Defence Force Act to provide operation and regulatory guidance. However, MDF does not have comprehensive military policies that guide doctrine formulation, training, organization and structure updates, personnel management, materiel acquisition, facility or infrastructure development, and leader development.

Personnel, Organization, and Leadership. MDF is a voluntary force. It has two Light Infantry Brigades with a comprehensive combat support system, air wing, and marine unit. On paper, it is structured to have active duty, reserve, and militia components. However, as of now, there are no active reserve and militia force structures in operation. The strength of MDF is estimated to be over ten thousand. Initial

engagement is seven years for enlisted personnel and ten years for officers. Above all, Malawi has over 5 million potential youth fit for military service.

The study reveals that the MDF is one of the most disciplined and professional military forces in Africa. However, there is a vast leadership gap between commissioned officers and noncommissioned officers. Furthermore, MDF still uses the 1985 modified table of equipment (MTOE), which does not tally with the present establishment. Therefore, modification and updating the MDF's MTOE is fundamental in the modernization process.

Training, Education, Research, and Personnel Development. MDF has one military college that trains the organization in various courses. Major courses conducted are PSO courses, combat training courses, staff courses, and recruits and cadet courses. The MDF outsources other professional courses through military cooperation with other countries, principally the United States. Mzuzu University, Centre for Security Studies, is the only academic institution where officers learn and conduct research in strategic security issues; however, there is no direct link and coordination in terms of research. On the same note, MDF has an internal Directorate of Research and Development that is responsible for research and development. Nevertheless, it does not adequately do the required research due to capacity and expertise.

MDF has a considerable knowledge gap between commissioned officers and noncommissioned officers. In the past, Malawian officers and Non-Commissioned Officers (NCO) had a functional working relationship. Over time, however, more officers and fewer NCOs are being educated and trained. However, MDF leadership, with the help of the American government, opened an NCO's academy to train Senior Enlisted

leadership courses. The initiative comes under the backdrop of MDF leadership, recognizing that NCOs Corps is key to a professional military, and the military should invest in its NCOs for a successful future. The study also noted a significant commitment of MDF leadership in personnel development and training. Every year the MDF sends out its personnel for Professional Military Education (PME) in various countries across the globe. It is worth noting that the MDF takes full advantage of security cooperation programs that partner countries have to advance professional development.

Military technology is often researched and developed by scientists and engineers specifically for use in battle by the armed forces. In Malawi, there is no coordination of researchers with the military, and the military does not conduct military innovations for itself and the public. However, they are initiatives that MDF is doing in order to improve innovation in the organization. There are some collaborations with technical schools to empower service members with the skills necessary for innovation. Nevertheless, there is no military funding of science towards the discovery of new technologies that can result in a reduction of expenditure.

Material and Facilities. MDF has land, air, and maritime components to defend Malawi's territorial integrity on the land, sea, and, air. MDF has bases across Malawi with a prominent presence in the south, central and elusively in the north. The study found that the equipment and facilities serviceability stands at 20 percent. Apart from the components' deficiencies in equipment and facilities; a significant concern is on air defense. The MDF does not have air defense capability that is capable of defending and dominating Malawi's airspace. Still, the MDF lags in equipment and facilities to enable

full integration of warfighting functions in fires, protection, sustainment, mission command, intelligence, and movement and maneuver.

MDF Military Capability Assessment

The study assesses MDF capability against the primary role of preserving the sovereignty and territorial integrity of the Republic and guard against threats to the safety of its citizens by force of arms. The author uses the findings of the results from budget and military expenditure, and competency assessment to determine the level of MDF's military capability. The study uses the Universal Joint Task List and classified documents in order to assess roles, tasks, and requirements for each military component. The assessment provides a descriptive analysis of the land, air, and maritime components of MDF. Table 7 below summarizes the findings of the assessment; however, details of the Assessment are in Appendix A.

Table 8. Competency Assessment Summary Matrix			
Elements	Military Force Components		
	Land	Air	Maritime
Technology	●	●	●
Doctrine and Policies	●	●	●
Personnel, Organization, and Leadership	●	●	●
Training, Education, Research, and Personnel Development	●	●	●
Facilities and Material	●	●	●
Average Score	●	●	●
Total Average Score	●		
Score Description	BLACK		
● GREEN indicates that the component is at 85 percent or greater strength			
● AMBER indicates that the component is at 70 to 84 percent strength			
● RED indicates that the component is at 50 to 69 percent strength			
● BLACK indicates that the component is at less than 50 percent strength			

Source: Created by the author.

Land Component. The central role of the military land component is to provide a unified land operation to the unified military action. Unified land operations describe how the land forces bring decisive action to bear (HQDA 2011). MDF land forces component conducts decisive and sustainable land operations through the simultaneous combination of offensive, defensive, and stability operations. It also provides defense support to civil authorities for domestic emergencies, law enforcement support, and other domestic activities. The land component also participates in the UN PSO as part of the political contribution to the global peace efforts.

However, the MDF Land component is below 50 percent combat effective with the capability to operate up to a division level. The findings reveal that the component is capable of conducting irregular operations up to 100 percent capacity. These operations consist mainly of ambushes, hit-and-run operations, and sniping activity, that can be

prosecuted most efficiently in urban areas with limited equipment, mostly small arms, and small forces usually organized around the company level. The study reveals that the MDF capability to conduct coordinated infantry and artillery operations is limited. The capability level directly impacts the ability to mount a static urban defense, including building robust fortifications backed up by artillery. Besides, the offensive capabilities of MDF cannot manifest above the battalion level. However, there is an involvement of some vehicular assets, packets of armor, and portable ATGMs that can fight against vulnerable soft targets or fixed installations.

The study findings show that MDF is incapable of elementary combined arms operations coordinated with armor-mechanized for mobile defensive operations at the brigade level. However, the land component can carry out limited basic flanking and envelopment operations against attacking armor with mobile forces using both infantry and armored elements. Above all, MDF at the current state cannot conduct basic combined arms operations at a division-level. These operations include operations with mobile defensive operations, featuring complete combined-arms operations with deep, close, consolidation and support areas.

Maritime. MDF Maritime component is a Malawi's warship and craft force maintained for fighting on, under, or over the water body or the sea. The strategic offensive role of the component is the projection of force and dominance over Lake Malawi and in areas beyond a country's shores (for example, to protect sea-lanes, ferry troops, or attack adversary navies, ports, or shore installations). The strategic defensive purpose of the MDF maritime component is to frustrate seaborne projection-of-force by enemies. The component also provides defense support to civil authorities for domestic

emergencies, law enforcement support, and other domestic activities. However, the maritime component of MDF is below 50 percent combat effective. The maritime unit can only perform coastal defense and mining in most primitive naval warfighting competency. It is limited to, operating small crafts (under 70 feet), armed with small-caliber weapons, and used primarily to patrol coastal waters for defensive operations. The MDF maritime component is not capable of conducting the operation of the higher-level maritime operation of coastal anti-surface warfare. Nevertheless, due to a marginal improvement in new maritime platforms and personnel training, the competency levels have increased. The component with coordinated training is capable of developing an increased offensive capability, with converted Army weapons such as rocket-propelled grenades, 12.7 millimeter caliber machine guns, and shoulder-launched rockets as the standard armament.

In order to achieve the maritime mission of the strategic defense of the shoreline, the maritime component is supposed to conduct anti-surface and anti-air warfare. The component is supposed to use surface ships, including countermining and naval gunfire support. The marine component represents further improvements in competency but remains within the ambit of the simplest form of naval warfare. At this point, the component is capable of operating at vast distances from the coast for extended periods, and ships generally sail independently. On the same note, to achieve the offensive spirit on the lake, the maritime component is supposed to conduct Anti-surface warfare with submarines. These operations usually take the form of small diesel submarines targeting military and civilian shipping traffic.

Air Component. The MDF Air component defends Malawi' air space. It is organized, trained, and equipped primarily for prompt and sustained offensive and defensive air operations. The air component aims at "achieving air superiority which is a degree of dominance in the air battle a force over another which permits the conduct of operations by the former and its related land, sea, air, and special operations forces at a given time and place without prohibitive interference by the opposing force" (JCS 2010, 10).

Malawi's air component capability is below 50 percent. The air component can barely operate as an air military component. The most basic air component role is airspace sovereignty defense. The study reveals that this role is the most primitive form of air warfare capabilities, and performed by a force whose competencies are exhausted. It is characterized by lightly-armed air assets, operating in tandem with ground-based radars. The force can detect intrusions into their airspace and defend it against unarmed adversaries. However, the MDF air component does not possess such capabilities.

In order to counter air threats, an air component is supposed to be capable of the elementary strategic strike. The most prominent type of strategic strike is offensive counter air. It is an "offensive operation to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems, both before and after launch, but as close to their source as possible" (JCS 2010, 172). On the contrary, MDF air component inventory does not hold air defense fighters, improved AAMs and GCI radars, which can operate out of hardened shelters to provide an enhanced passive defense to the nation's airspace.

On the same note, the MDF air component is not capable of conducting elementary defensive counter air (DCA). DCA means “all the defensive measures designed to detect, identify, intercept, and destroy or negate enemy forces attempting to penetrate or attack through friendly airspace” (JCS 2010, 63). DCA represents an improved ability to defend one’s air space against armed intrusion. While it may not suffice to conduct a sustained DCA campaign against a more advanced air force, it does allow for an ability to inflict some losses against a more advanced aggressor and to prevent a potential foe from conducting unlimited overhead reconnaissance. MDF does not have any DCA capability to inflict some losses against any aggressor in the air and prevent a potential foe from conducting overhead reconnaissance. Additionally, the other crucial role of air component is to offer battlefield air interdiction during concerted action. MDF inventory does not warrant the utilization of the air component for basic attack, ground surveillance, cluster munitions dispersion, in order to influence the tactical battlefield.

Finally, the average level of MDF capability stands at 40 percent. MDF’s current capability is in a BLACK category. It means that the MDF is not capable of performing as an organized military in order to seize, retain, and exploit the initiative. Moreover, the force is not capable of striking the enemy, both lethally and nonlethally, in time, places, or manners for which the enemy is not prepared. MDF leaders cannot prevent the enemy’s recovery by retaining the initiative. Malawi military is capable of limited insurgency war, but cannot destroy enemy capabilities, seize decisive terrain, protect populations and critical infrastructure, and degrade the coherence of the enemy force on ground, sea, and air.

Analysis and Comparison of Modernization Models

The models are analyzed using the documentary analysis tool of *Walt and Gilson policy analysis triangle* model. The main aim of the model is to establish a deeper understanding and gaps of the models. The model establishes a baseline question which each variable attempt to address. The first question is on actors: Who identifies problems or issues as worthy of attention; prevent consideration of problems or issues; shape the design of proposed process-model; block the implementation of proposals; develop the strategies for implementation of policies; and shape the practice of implementation influences the impacts achieved through policy changes. The second question is on content; what are the structures or mechanisms for implementation, resource availability, and indicators for monitoring and evaluating progress? Context answers the third question on what is the environment or situation in which policy processes occur, and includes structures and resources as well as ideas and values. Lastly, the process answers the question of what steps should be taken to implement the change. Furthermore, data analyzed is subjected to further analysis using Nvivo. The aim is to establish a model that has the most excellent interaction relationship amongst the variables.

AFMM

Context. AFMM is a capability-based model. It is a linear model construct of input, process, actors, and output. Driven by the strategic direction or combat requirement, it is a Force Management model that accomplishes capability development, and assessment of current capabilities versus future concepts to develop solutions across the DOTMLPF-P domains. It uses force development, resource prioritization, materiel development, and, force integration.

Process. The model is a multi-step process that develops, prioritizes, resources, and documents, organizations based on requirements identified under the capabilities development function. The process is complex and requires regular interaction and synchronization across the DOTMLPF-P domains. The process is ideal for large forces because the economies of scale can easily offset errors. It requires an agile and adaptive defense industry. It also thrives in a favorable political climate where support is adequate.

Content. AFMM provides the relationships of army processes to each other and the major Department of Defense management processes. This management of change uses many interrelated and complex processes. Although the model depicts the flow of processes in a linear, sequential manner, the complexities of managing change may dictate some simultaneity processes. Therefore, it requires agile managers at every level to work within the given time, continually adapting to the changes and informing the decision makers. The process needs good databases and various working groups to facilitate necessary processes according to plan.

Actors. Major actors are political leaders, military commanders, and the defense industry. The political actors give direction to the process through the President, Secretary of Defense, and Secretary of the Army. The military has various actors at every level of the process. The actors start from the Chief of Staff of the Army to the equipment user. However, throughout every stage, several actors are responsible for the process. Lastly, the defense industry is also a significant player, especially in material development. The Defense Acquisition System process is purely the responsibility of the defense industry. A significant defense industrial base is a requirement for this model. The model requires a synchronized understanding of the process by all the actors.

Framework

Context. The principal aim of using the framework was to develop a single visual representation of future military capability. The circular layered construct provides an in-depth understanding of the relationship between actors, processes, and spheres of influence. However, the model does not offer flexibility on the reaction of the layers within an external environment from other layers.

Process. The process is a combination of effects and capability-based assessment. The model builds “upon “platforms” and the associated “facilities” that surround those platforms already in use. The model gives more details of the actors and their capabilities to affect a function. It encapsulates the warfighting force structures together with the operational environment domains (land, maritime, and air). However, the application of a platform to deliver a set of specific effects is misleading and trying to determine the capability requirement.

Content. The framework depicts finite details of the environment, military domain, required effect, and actors that influence the capability development. It presents a detailed depiction of the relationships, functions, tensions, and tendencies. However, it oversimplifies the complexity of the intangible phenomenon like effects. Similarly, it does not present flexible options on how the process could influence government policy, defense budgets, commitments, threats, scenarios, and concept of operations.

Actors. The main actors in the Framework model are warfighters, government, and industry. The actors interact to influence government policy, defense budgets, defense commitments, threats, scenarios, and concept of operations. The utilization of the framework allows the three stakeholder groups to have a shared understanding of what

will constitute future military capability. However, the resulting expansion of the influence broadens the scope of the process as a result and may be too complex to be funded by a government with constrained resources.

Capability Based Planning

Context. The capability-based planning approach provides a defense system with an adequate response in facing uncertainty, economic constraints, and risks. It focuses on goals and end-states and encourages innovation on a top-bottom hierarchical setting. It does start by asking questions regarding *what do we need to do rather than what equipment are we replacing?*

Process. The process starts with the overarching guidance, identifies capability gaps, explores options, and ends with an affordable investment plan. The significant inputs in this model are the consideration of the national interest that sets the mission agenda. It presents an option that the military can initiate the process based on the operational environment. It allows the interaction of actors at various levels. However, the process does not involve other stakeholders like the defense industry, which might affect the material solution development. On the other hand, the process provides an efficient system that does not require much resources or technology to implement.

Content. CBP explicitly connects capability goals to strategic requirements. It provides a simplified model for identifying the capability levels needed to achieve a given military objective. It provides a holistic approach to capability assessment and development. It facilitates force options within the available budget to meet the range of contingencies expected by the government. However, the process requires senior

management commitment and the creation of an appropriate organizational context for resources allocation.

Actors. There are two key actors in the CBA: decision makers and capability developers. Decision makers are typically senior military leaders and government officials while developers are the system technocrats that can be co-opted based on the required capability. CBP provides a more rational basis for making decisions on future acquisitions and makes planning more responsive to uncertainty, economic constraints, and risk. However, lack of inclusion of defense industry or private institutions as permanent actors hinders innovative thinking.

After the analysis of the model, the author uses Nvivo analysis software to determine a model which offers high nodes of causal relationship amongst the variables. Figure 8. Compare CBP with Framework model, and Figure 9 compares CBP with AFMM against actors, process, context, and content nodes.

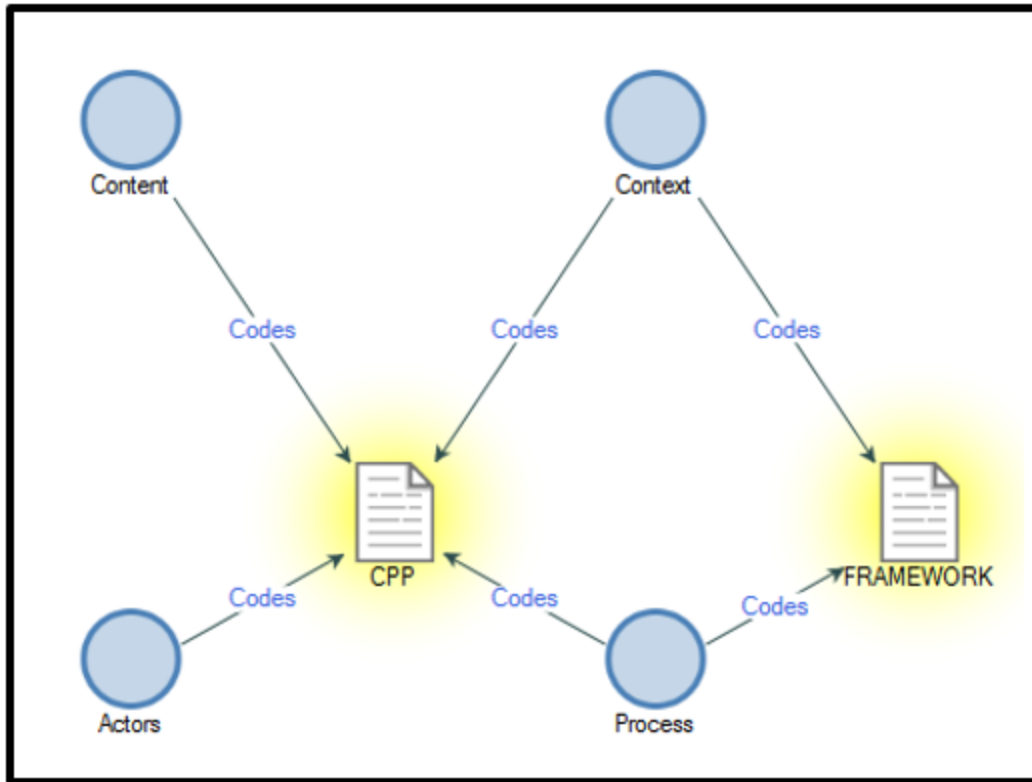


Figure 8. Model Variables Relationship Comparison Results

Source: Created by the author.

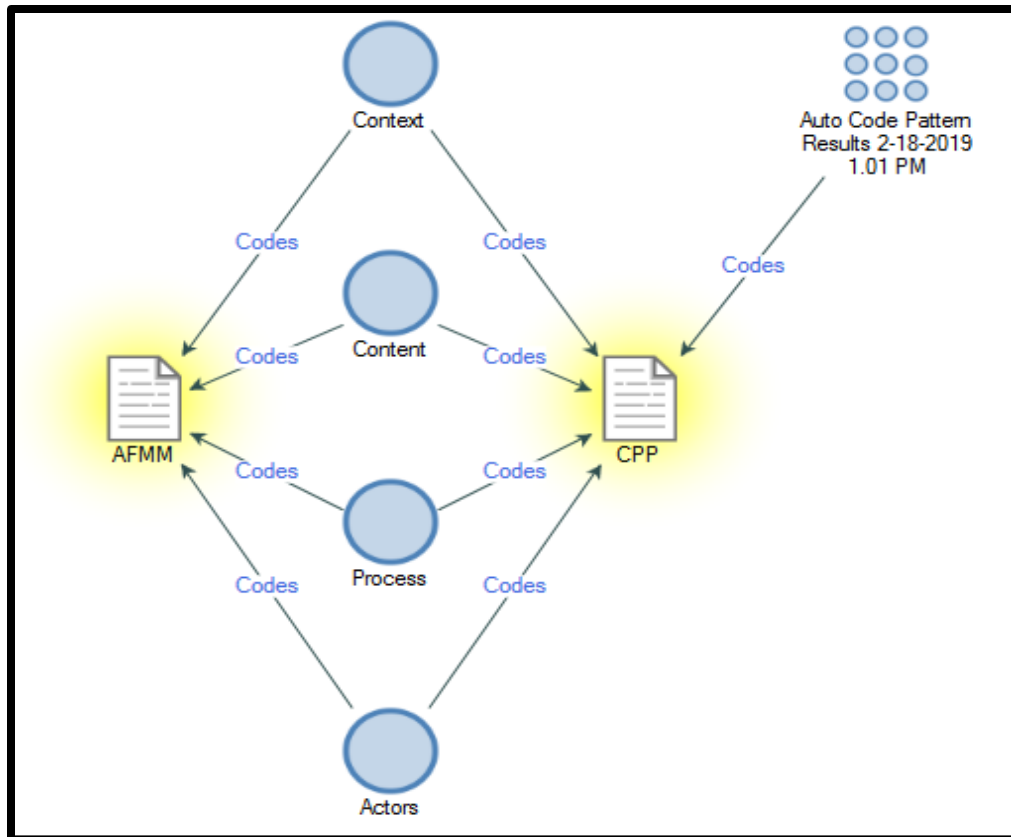


Figure 9. CBP and Framework Model Variable Relationship Comparison Results

Source: Created by the author.

The results shown in figure 8 shows the results of the comparison of CBP and Framework relationship. The comparison illustrates that the CBP model present causal relationship amongst actors, process, context, and content, while Framework presents subtle which, only caters between context and process. Figure 9 presents a comparison between CBP and AFMM. The results depict an active interaction between process, actors, context, and content. The interaction signifies that the models are similar. However, the results reveal a high level of interaction of the variables in CBP.

Evaluation of Modernization Models

The study evaluates the models using Suitability, Feasibility, and Acceptability model. On suitability, the thesis finds out to what extent is the model fulfilling the purpose of the study? Feasibility of the model investigates to what extent is the model possible. It involves looking at strengths and weaknesses that arise from internal analysis of interaction among the variables within a model. Then checks on the external analysis of the strategic guidance institutions and internal capability variables. Lastly, acceptability examines the appropriateness of the model within the constraint of means. The choice arises by examining two financial aspects; budget and economy.

Table 9. Model Analysis				
CRITERIA	SUITABILITY	ACCEPTABILITY		FEASIBILITY
Scoring Definitions	3: small policy reach, organization effect size, and impact of actors' interaction 2: small policy reach with a large effect on organizational culture, Impact on actor's interaction is minimal 1: large policy reach, organizational effectiveness, and impact of actors' interaction	3: High costs to implement 2: Moderate costs to implement 1: Low cost to implement	3: costs are high relative to the benefits 2: costs are moderate relative to benefits (benefits justify costs) 1: costs are low relative to benefits	3: No-small likelihood of being implemented 2: Moderate likelihood of being implemented 1: High likelihood of being implemented
		Budget	Economic	
AFMM	☒ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☒ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☒ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☒ 3 ☐ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)
FRAMEWORK	☐ 3 ☒ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☒ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☒ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☒ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)
CBP	☐ 3 ☐ 2 ☒ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☒ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☒ 2 ☐ 1 Concerns about the amount or quality of data? (Yes - No)	☐ 3 ☐ 2 ☒ 1 Concerns about the amount or quality of data? (Yes - No)
Scores Report	AFMM	FRAMEWORK		CBP
	9	5		4

Source: Modified by the author using Gerry Johnson, Kevan Scholes, and Richard Charles Whittington, *Exploring Corporate Strategy* (Essex, England: Pearson Education Limited, 2008).

Analysis Summary of the Modernization Models

Table 10. Modernization Process Models Evaluation Matrix			
Evaluation Criteria	Modernization Process Models		
	AFMM	Framework	CBP
Suitability	3	2	1
Acceptability	3	1	2
Feasibility	3	2	1
Scale “1” to “3;” where “3” is good, “2” is better, and “1” is best.			

Source: Created by the author.

The analysis of the results reveals that AFMM has the highest score on suitability (3), acceptability (3) and feasibility (3). The score means that the model is highly unfavorable since the small number is better on the scale. The Framework is moderately favorable where on suitability it scored 2, acceptability 1 and feasibility 2. However, Capability Based Planning scored the least which on suitability (1), feasibility (1) and moderately on acceptability (2). Therefore, the study concludes that CBP offers a plausible model for MDF. The study, further reveals that CBP presents a more comprehensive strategic opportunity than AFMM and Framework. It gives a high latitude of possibility to implement even with the current status of MDF.

Summary

This chapter captured the findings from all the data gathered during the research to answer the primary question of how MDF should modernize to respond to the future threat. First, the chapter answered the first subordinate question on the strategic framework that gives MDF guidance. It used documentary analysis coupled with “End,

Ways, and Means” analytical model. It concluded that no complete strategic direction provides background on Malawi’s military strategic direction. Then, using *Rand Military Capability Measurement* coupled with documentary analysis, the study found the second question on current military capabilities. The study found that Malawi’s military capability is way below 50 percent. Walt and Gilson’s model helped to compare the three models of AFMM, Framework, and CBP. The study analyzed the models using SAF analytical model to establish a suitable model for MDF. CBP scored favorably in the evaluation.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The primary question of this research was how the Malawi Defence Force (MDF) should modernize to respond to future threats. The purpose was to determine a suitable modernization process that MDF might implement to modernize. This chapter explains the logic behind the conclusions and recommendations from the analysis conducted in the previous chapter. This chapter intends to address the main research question, while answering the secondary questions. It explains the meaning of the results and those implications for MDF's capabilities and force management. This chapter concludes with recommendations for further studies and poses unanswered questions that may impact future developments of this effort.

Interpretation of Findings

The evidence from analysis of the data validates Capability Based Planning as the right model that answers the primary research question. The author presented a proposed model of MDF modernization process in figure 10. This model describes a detailed strategic budgetary planning model that MDF could apply to move from its current capability to achieve higher military competencies. Elements of this model are dynamic and can be developed to respond to an ever changing security environment. The model provides insights into elements that the MDF could use to effectively prioritize its planning and programming to match future capabilities for emerging national security requirements.

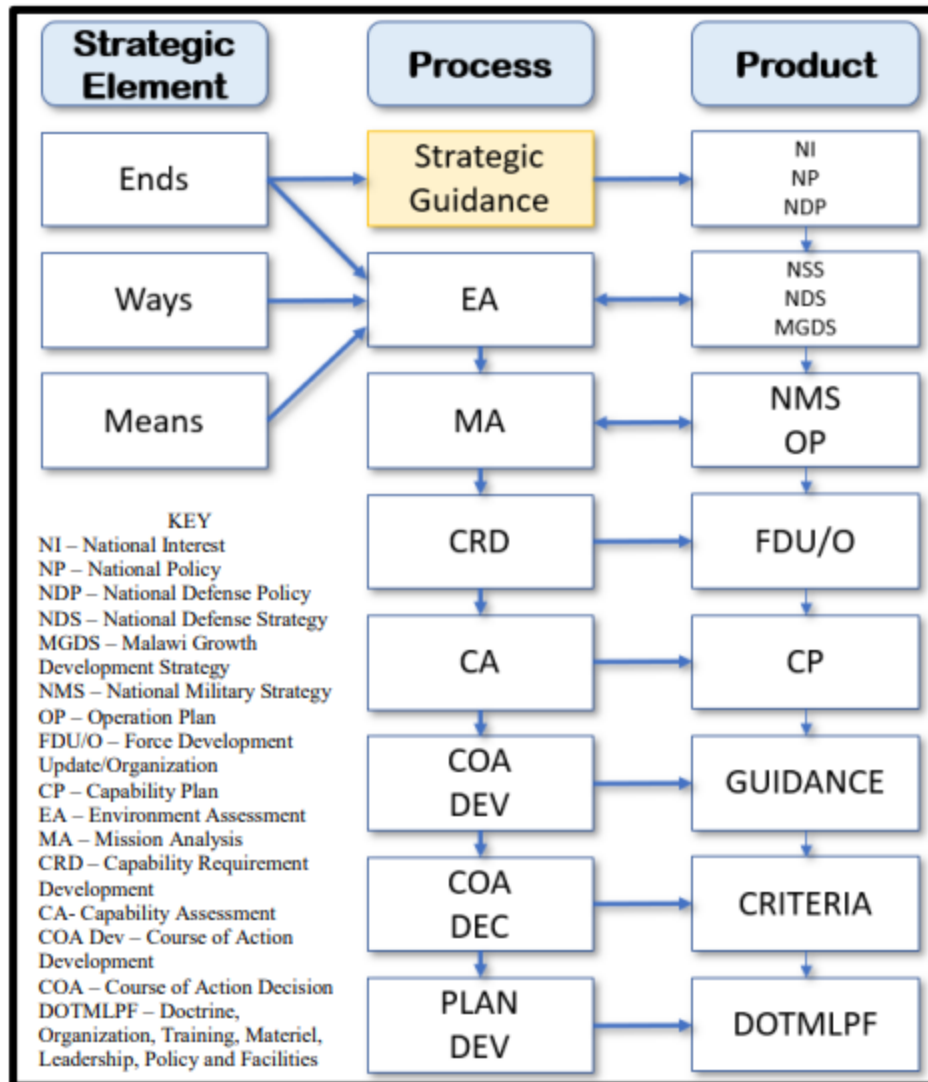


Figure 10. Proposed MDF Modernization Model

Source: Created by the author.

This model is a capability-based model that illustrates a comprehensive process that MDF might adopt in order to modernize and respond to future threats. It is an eight-step process that begins with identifying the overarching strategic guidance through national interest or national security goals shift. The commander-in-chief articulates the

national security objectives through a national security policy. The minister of defense in response to the commander in-chief's vision outlines in detail defense-related objectives in the national defense policy. These policies trigger all stakeholders to conduct an assessment of the environment to allow for policy implementation.

The assessment produces strategies which are coherent with End, Ways, and Means construct. The President issues the national security strategy from which the minister of defense extracts the defense portion and produces a national defense strategy that resonates with other government priorities. Then the strategy goes through the authorization and appropriation process in parliament. The authorization of appropriations is intended to guide the appropriate amount of funds to carry out the strategy. After that, Malawi Development Growth Strategy (MDGS) and supporting policies update those priority areas so that elements of the strategy receive necessary support from the discretionary budgetary support. When the MDF gets an approved national defense strategy, it conducts its mission analysis after the receipt of the military objectives (Ends), guidance and methods (Ways), and resources (Means).

From the analysis, the MDF produces its military strategy to satisfy the defense objectives. It is from the military strategy that the MDF Joint Headquarters produces an operational plan that goes to a specific branch or component. That component identifies capability gaps, explores options, and ends with an affordable investment plan. This process is iterative until all solutions meet the recommended criteria. The process goes through capability requirement development to get a feasible force design or an update of the existing; then conducts a capability assessment to come up with a capability plan. The plan recommends several feasible courses of action for consideration by military

leadership. Courses of action are evaluated based on those criteria that the component commander decides to use. After that, MDF Commander authorizes the course of action to be made into a plan of action. Various departments and the actors are given responsibilities in the plan to implement the solution through DOTMLPF-P.

This model is a visual representation that officials can use to educate, visualize, and forecast resources for future planning, while instilling economic thinking in future force capabilities. The process offers linkages between military, executive and legislative branches of government by presenting an ideal co-existence of various government agencies in developing the military as a national instrument of power. This model can be adopted and developed into a comprehensive ‘All Government Approach’ process for military and other agencies. The process can help military decision-makers to be aware of indicators of fiscal sustainability in defense planning and programming. Early identification of indicators will allow decision-makers to plan and coordinate military capability decisions.

However, the process requires institutional adjustments on the part of both military and civilian authorities. Such adjustments commence by aligning the distinct, but complementary, core strengths of civilian authorities and the armed forces. These adjustments commence when civilian authorities provide valuable strategic guidance through strategies and policies that align with the national goals and interest. Similarly, military leadership understands its role in the overall national structure. This relationship results in a force that is disciplined and able to influence, manage, or control events to protect national interests.

The results of this study suggest that the MDF has a long way to go in order to develop its capabilities to respond to a future threat adequately. However, as a country, Malawi's defense sector can begin moving towards change by initiating small milestones that require little or no extra costs. These milestones can range from formalizing security and defense policy, drafting security and defense strategy, or refining the proposed model from this study. On the other hand, the MDF should continue to develop a professional force with programs that directly relate to the core functions of the defense force. Furthermore, the MDF should always present attainable goals within the spectrum of available national resources. Nevertheless, civilian authorities should know that defense materiel is always expensive and requires capital investment over a long time. However, the MDF should endeavor to manipulate other recurring expenses to reduce the scale of MDF budgets.

Recommendations

This study only looked at the primary role of MDF in the assessment of capabilities. The author recommends further study on other roles of the MDF, especially those that affect Peace Support Operation (PSO) and military aid to civil authority. It is the author's view that proper policies guiding PSO, military engineering, agricultural production, medical services, air, and water transport can have some economic spin-offs to assist MDF capability development. On the same point, by law, the MDF has three divisions: active, reserve, and militia forces, but this study only focused on the active force component. Therefore, those other two forces need a proper study on how they might influence capability development of the MDF.

Similarly, while conducting the research and analyzing data, the author discovered additional sub-questions that requires further research. The questions are: What is the standard (economic or financial) value of peace? This question is essential to establish the tangible and transferable value of what a country is willing to pay for peace, and that understanding can provide a prescriptive base for military planning. The second question is; what is the effective military to civilian population ratio in peacetime and war? The ratio is useful in identifying the required military force. However, a military-to-population ratio is not enough, but should also take into consideration other variables like operating environment and quality of the military force. Nevertheless, with that proviso in mind, suggested military-to-population ratios can provide a baseline for determining force requirement.

On the areas that could be done differently; the author recommends a vibrant combination of threat and capability-based planning approaches for the model. Apart from the question of what type of capability is needed, this model should also be able to answer questions as to why we need that capability and towards which threats? The process should further help identify capabilities for specific future threats or issues under certainty while keeping a conservative approach to the results. The model should also provide alternative scenarios with specific objectives to provide decision makers with different options while managing risk.

In the same way, the author recommends a combination of a quantitative and qualitative approach. Statistical scrutiny on the critical variables of culture and history, and their implications for military capability development, needs quantifiable analysis. For that reason, scrutinizing vast amounts of historical and cultural data, which is

dissimilar and creating statistical results that influence decisions, is vital to develop a homogeneous model. The analysis of such data can produce formulas to analyze and forecast the military capability and requirements to achieve a proposed effect. These formulas will not only be beneficial to this model but to other models of military capability assessment.

However, the author realizes that building a comprehensive predictive model on military capability measurement requires more elaborate, extensive, and continuous research. The author also realizes that a professional model of that scope goes beyond one person's ability to create in nine months of individual effort. Therefore, the findings in this study are not prescriptive, but descriptive to form a baseline for further discussions and improvements.

For action, the author recommends legislation to enact a National Security Act, which should establish a National Security Council. The council will be a principal forum used by the President for consideration of national security, military, and foreign policy matters. This forum would guide the identification of national interests and formulation of NSP and NSS documents. However, even in the absence of a established National Security Council, the author recommends that the necessary actors should take action in formalizing NSP and NDP and drafting of NSS and NDS.

The MDF through the ministry of defense should initiate a Whole-of-Government (WG) approach in the next phase of this research by appointing a special task force. This task force should include; government officials from the Office of the President and Cabinet, Ministry of Foreign Affairs, Ministry of Finance, Ministry of Defense, Ministry of Homeland Security, and civilian security think tanks. This initiative will facilitate

cross-departmental and inter-organizational cooperation in the development and implementation of integrated government response to national security issues.

The author also recommends involvement of international partners through security cooperation to assist in the implementation of defence modernization process through support of DOTMLPF-like solutions. For instance, the U.S. through security cooperation programs, can assist in building military capabilities for self-defense, and multilateral operations. Therefore, taking advantage of security cooperation programs can assist in doctrine development, organization systems structure, leadership development, and institutional framework for the whole defense sector. In the same way, defense officials can take advantage of government infrastructure programs and relationships with partner nations to access projects that address military facilities and hardware. For instance, partner nation like China can help with infrastructure development of installations and training institutions, military hardware, and provision of technical training.

The author recommends a significant investment in research and technological development. For the MDF to continue improving and maintaining military capability; it ought to always configure its situation to align with structure, processes, and relationships. Therefore, MDF has to encourage partnership with civilian colleges and universities to improve innovative culture.

Summary

The chapter explained the logic behind the conclusions and recommendations of the study. The study proposed a capability-based model as a feasible model for MDF to

modernize and respond to future threats. The model offers rationality in linking strategic guidance to capability development of the military. The linkages present an ideal co-existence of various government agencies in developing the military as a national instrument of power. The author pointed out the need to further the study to include culture variable and find a quantitative formula for other variables like peace and force requirements. The chapter concludes by encouraging the MDF to take action to initiate the process.

APPENDIX A

MDF COMPETENCY ASSESSMENT

Table 11. Assessing MDF Land Component Capability						
ROLE	TASK	TECH-NOLOGY	INTEGRATIVE CAPACITY			
			Doctrine and Policies	Personnel, Organization, and Leadership	Training, Education, Research and Personnel Development	Facilities and inventory
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Irregular infantry Operations	COIN Urban	100	20	100	100	100
	COIN Rural	100	20	100	100	100
	Sniping	100	100	100	100	100
Coordinated infantry-artillery Operations	Static urban defense	50	20	80	60	50
	Battalion level offense	40	20	70	50	40
	Soft target kills	20	20	50	40	30
Elementary combined arms	Brigade-level mobile defense	20	10	70	40	10
	Limited brigade-level offense	20	10	50	40	5
	Limited deep attack	0	10	60	20	0
Basic combined arms	Division-level mobile defense	0	0	0	0	0
	Brigade-level offense	0	0	0	0	0
	Elementary maneuver	10	0	10	10	5
Score Totals (%) -1200		460	230	690	560	440
Average %						39.7
Score Description					●	
SCORE NOTES:						
● GREEN indicates that the component is at 85 percent or greater strength						
● AMBER indicates that the component is at 70 to 84 percent strength						
● RED indicates that the component is at 50 to 69 percent strength						
● BLACK indicates that the component is at less than 50 percent strength						

Table 11. Assessing MDF Land Component Capability	
TECH NOTES	Irregular infantry Operations - Limited RSTA, HE munitions, Elementary C3, Lt-made tanks, AFVs, Towed artillery, Lt-MED ATGMs, AND Limited night vision. Coordinated infantry-artillery Operations - Offensive BW-CW, Elementary night vision, Elementary UAVs CMs, Limited SPA, Elementary RSTA, Elementary FCS, Limited SAT ground stations Elementary combined arms - Limited EW, Moderate SPA, Elementary attack helicopter, Elementary mobile AD, Limited SSMs, MRLs, Limited ADHPM artillery, Basic C3, MED-heavy tanks, APVs Basic combined arms - Airborne BW, Limited ESM, Moderate SSMs, MRLs, Basic CMs, Basic RSTA, Basic FCS, Satellite imagery
INTEG NOTES	Irregular infantry Operations - Battalion level exercises, Limited combat engineering, Elementary maintenance activities, Limited night training, Guerrilla Tactics. Coordinated infantry-artillery Operations - Brigade level exercises, Limited combined arms training, Elementary night training, Elementary combat engineering schools, intel support, Flanking, envelopment tactics. Elementary combined arms - Division level exercises, Battalion level combined arms exercises, Elementary combat logistics, Elementary Infrastructure, Exploitation pursuit tactics, and, Combined arms doctrine. Basic combined arms - Basic maintenance activities, Basic schools, Basic Intel support Force, synchronization tactics.
ASSESSMENT	Irregular operations consist mainly of ambushes, hit-and-run operations, and sniping activity, that can be prosecuted most efficiently in urban areas with limited equipment, mostly small arms, and small forces usually organized around the company level. Coordinated infantry and artillery operations, which impart the ability to mount a static urban defense, including building robust fortifications backed up by artillery. Offensive capabilities at this level of proficiency usually are not manifested above battalion level and involve some vehicular assets, packets of armor, and portable ATGMs usually employed against vulnerable soft targets or fixed installations. Elementary combined arms operations coordinated armor-mechanized mobile defensive operations at the brigade level, military force can now carry out basic flanking and envelopment operations against attacking armor with mobile forces using both infantry and armored elements. Basic combined arms sophisticated division-level operations with mobile defensive operations, featuring complete combined-arms operations: their defensive operations would include echeloned concentrations of armor, pinning attacks and feints, fire traps, and rapid shifts of forces from one sector to another, while their deep offensive operations, mostly restricted to the brigade level, could include armored attacks that employ creative turning movements and open the door to exploitation-pursuit operations.

Source: Modified by author using Ashley J. Tellis, Janice Bially, Christopher Layne, and Melissa MacPherson, “Measuring Military Capability,” in *Measuring National Power in the Postindustrial Age* (Santa Monica, CA: RAND Corporation), 133-176.

Table 12. Assessing MDF's Maritime-Naval Component Capability

ROLE	TASK	TECH- NOLOGY	INTEGRATIVE CAPACITY			
			Doctrine and Policies	Personnel, Organization, and Leadership	Training, Education, Research and Personnel Development	Facilities and inventory
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Coastal defense, mining	Coastal Defense	100	20	100	80	80
	Inland water patrol	100	20	100	90	100
	Interception	100	100	100	90	80
Coastal anti surface warfare	Offensive	50	20	70	60	30
	Flag showing	80	80	80	80	80
	Freedom of navigation operations	80	20	50	70	50
Anti-surface warfare	Anti-air warfare (surface)	20	10	70	40	10
	Countermining	20	10	30	40	5
	Naval gunfire support	10	10	40	20	0
Anti-surface warfare (submarine)	Access Denial	0	0	0	0	0
	Blockade	0	0	0	0	0
	Offense (Choke)	10	0	10	10	5
Score Totals (%) -1200		570	290	650	580	440
Average %						42.7
Score Description						
SCORE NOTES:						
 GREEN indicates that the component is at 85 percent or greater strength						
 AMBER indicates that the component is at 70 to 84 percent strength						
 RED indicates that the component is at 50 to 69 percent strength						
 BLACK indicates that the component is at less than 50 percent strength						
TECH NOTES		Coastal defense and mining - Patrol craft, rocket-propelled grenades, Small caliber guns, LOS targeting, Limited VHF comms, Coastal CMs, ASMs, and, SAMs. Coastal anti-surface warfare – Corvettes, FFs, DDs, Mine warfare ships, Medium caliber guns, Elementary radars, Elementary, naval CMs, ASMs, SAMs Limited SAT ground stations. Anti-surface and anti-air warfare – Elementary subs, Elementary sonars, Elementary torps Anti-surface warfare - Embedded helicopters, Basic sonars, Elementary and data links				

Table 12. Assessing MDF's Maritime-Naval Component Capability	
INTEG NOTES	Coastal defense and mining - Commercial navigation skills, Limited military training, and, Independent ops Coastal anti-surface warfare – Elementary ship handling skills, Elementary DC, FC, anti-air warfare training, SAGs, Elementary maintenance activities, Elementary logistics, Elementary infrastructure Anti-surface and anti-air warfare – Sub school, Basic ship handling skills, Basic DC training, Basic FC training Anti-surface warfare Combat ASW ops, Basic ASW training (large subs), Elementary fleet exercises, Elementary Intel support, and, Oceanography.
ASSESSMENT	Coastal defense and mining represent the most primitive naval warfighting competency such operations are the provenance of navies composed of small craft (under 70 feet), armed with small-caliber weapons, and used primarily to patrol coastal waters or lay mines for defensive operations. Coastal anti-surface warfare represents a marginal improvement in competency deriving from increased offensive capability, with converted Army weapons such as rocket-propelled grenades, .50 caliber machine guns, and shoulder-launched rockets as the normal armament. For the most part, personnel acquire ship-handling skills for the commercial sector, but limited naval training may provide the skills required for weapons proficiency. Anti-surface and anti-air warfare with surface ships, including countermining and naval gunfire support, represent further improvements in competency, but nonetheless remain within the ambit of the simplest form of naval warfare: ship versus ship. Such forces are not capable of operating at large distances from the coast for extended periods, and ships generally sail independently. Anti-surface warfare with submarines represents a higher level of competency relative to operations conducted by surface ships alone because of the complexity of submarine operations and the challenges of operating effectively under water. These operations usually take the form of small diesel submarines targeting military and civilian shipping traffic.

Source: Modified by author using Ashley J. Tellis, Janice Bially, Christopher Layne, and Melissa MacPherson, “Measuring Military Capability,” in *Measuring National Power in the Postindustrial Age* (Santa Monica, CA: RAND Corporation), 133-176.

Table 13. Assessing MDF's Air Component Capability

ROLE	TASK	TECH- NOLOGY	INTEGRATIVE CAPACITY			
			Doctrine and Policies	Personnel, Organization, and Leadership	Training, Education, Research and Personnel Development	Facilities and inventory
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Airspace sovereignty defense	Air detection	0	20	15	10	80
	Air space denial	0	20	0	10	50
	No fly zone	0	10	10	10	20
Elementary strategic strike	Counter air	0	20	10	10	30
	Maritime defense (coastal)	20	10	20	20	30
Basic defensive counter air (DCA)	Elementary Defensive	0	10	10	20	10
	Advanced defensive	0	0	0	10	5
	Counter air	0	10	0	40	5
Battlefield air interdiction	Basic strategic strike	0	0	0	10	0
	Maritime strike (coastal)	30	10	0	0	0
Score Totals (%) -1200		60	110	75	150	235
Average %						10.5
Score Description						
SCORE NOTES:						
 GREEN indicates that the component is at 85 percent or greater strength						
 AMBER indicates that the component is at 70 to 84 percent strength						
 RED indicates that the component is at 50 to 69 percent strength						
 BLACK indicates that the component is at less than 50 percent strength						
TECH NOTES	Airspace sovereignty defense - Elementary AD fighters, Elementary IR, AAMs, Elementary GCI radars. Elementary strategic Strike – Basic AD fighters, Elementary attack a-c, bombers, Basic IR, AAMs, Unguided, bombs, Elementary aerial recce, UAVs, Elementary EW, Basic GCI radars and Hardened Elementary defensive counter air (DCA) – Advanced AD fighters, Radar guided AAMs, ASMs Basic aerial recce, UAVs Elementary AEW, Elementary PGMs, and ALCMs Battlefield air interdiction – Basic attach a-c, bombers, Elementary ground surveillance radars, Aerial refueling Cratering munitions, Cluster munitions, Basic PGMs, ALCMs and Satellite imagery.					

Table 13. Assessing MDF's Air Component Capability	
INTEG NOTES	Airspace sovereignty defense - Poor pilot training, Inflexible C3, Fixed air defense corridors Elementary strategic Strike – Limited pilot training, Elementary logistics, Elementary infrastructure, Low Operational tempo, Elementary intel support Elementary defensive counter air (DCA) – Elementary pilot training, Elementary C3 training, Elementary maintenance activities, Elementary air controller training Battlefield air interdiction – Basic pilot training, Basic logistics, Basic infrastructure, Medium, operational tempo
ASSESSMENT	Airspace sovereignty defense remains the most primitive form of air warfare capabilities, and a force whose competencies are exhausted by this mission is usually equipped with lightly-armed air assets operating in tandem with ground-based radars. These forces can detect intrusions into their air space and defend it against unarmed adversaries. Elementary strategic Strike – Forces often field improved air defense fighters, improved AAMs and GCI radars, and operate out of hardened shelters that provide enhanced passive defense to the force as a whole. Elementary defensive counter air (DCA) represents an improved ability to defend one's air space against armed intrusion. While it may not suffice to conduct a sustained DCA campaign against a more advanced air force, it does allow for an ability to inflict some losses against a more advanced aggressor and to prevent a potential foe from conducting unlimited overhead reconnaissance. Battlefield air interdiction Utilizing basic attack aircraft, ground surveillance radars, cluster munitions, and basic anti-armor PGMs, such forces can influence the tactical battlefield while also reaching out to targets in the strategic realm.

Source: Modified by author using Ashley J. Tellis, Janice Bially, Christopher Layne, and Melissa MacPherson, "Measuring Military Capability," in *Measuring National Power in the Postindustrial Age* (Santa Monica, CA: RAND Corporation), 133-176.

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