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**THE ROLE OF MILITARY FORCES IN NATIONAL FOOD SECURITY
STRATEGIES: A COMPARATIVE ANALYSIS OF EGYPT AND KENYA**

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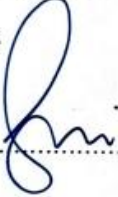
Declaration

I, Justyne A Makwata Reg No: R47/41707/22, hereby declare that this research project is my original work and has not been presented for a degree in any other University.

Signed  Date 08 Sept 2022

Justyne A Makwata

This research project has been submitted for examination with my approval as University Supervisor;

Signed  Date 09 / Sept. 2022

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Dedication

I dedicate this work to my husband Joseph Omondi Ochieng and my children Joy Owendi, Jeryl Carol and Jodan Adol who have inspired me over the years to relentlessly pursue knowledge.

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Abstract

Food security is increasingly becoming hard to actualize in many countries, given the constellation of challenges that are posed by today's world. Countries around the world are grappling with climate change, rising populations versus decreasing food reserves Demoralized farmers, endemic corruption, greed, incompetence, failed policies and lack of innovativeness to stay on top of the game by governments has put countries in a precarious situation in the area of food security. The objectives of this study were to: assess the contribution of the military to food security in Kenya and Egypt from 2010; to establish the factors contributing to a facilitative environment for effective involvement of the military in food security programmes in Kenya and Egypt from 2010; and, to investigate the constraints to effective participation of the military in achieving food security in Kenya and Egypt from 2010. A literature review was undertaken on the state of food security in Africa, Measures taken by the Government of Kenya to Achieve Food Security in Kenya and the capabilities of the Kenyan military. The study adopted a descriptive design and was conducted through document analysis based on a document analysis guide. The study found that the military plays a major role in food production and security in Egypt, producing up to 18% of the country's food. The study also established that political security in Egypt is tied to food security; that a national level coordinating mechanism is critical to the military's participation in food security in Egypt. It also found that the military in Kenya has a big impact in the country's food security through the Kenya Ordnance Factories Corporation (KOFC). In Kenya, the success of food production initiatives after previous failures shows that the military can indeed contribute to the country's food security, and that military interventions around the world, such as the US in Afghanistan, in Nigeria and Indonesia demonstrate that the military is capable of making a contribution to countries' food security. Other findings indicate that fears linger over a virtual Egypt-style takeover of government by the military in Kenya.

List of Abbreviations

ADB	African Development Bank
ADC	Agriculture Development Corporation
ADTs	Agricultural Development Teams
AMS	Agricultural Mechanisation Services
ARC	Agriculture Research Centre
ASALs	Arid and Semi-Arid Lands
ASPS	Agriculture Sector Support Programme
ATDC	Agriculture Technology Development Centres
CASP	Central Administration for Seed Production
COVID	Corona Virus Disease
DANIDA	Danish International Development Agency
DAP	Diammonium Phosphate
EID	Emerging Infectious Diseases
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
FLW	Food Loss and Waste
FPF	Food Processing Factory
GDP	Gross Domestic Product
GNI	Gross National Income
KAPP	Kenya Agricultural Productivity Programme
KDF	Kenya Defense Forces
KMC	Kenya Meat Commission
KNBS	Kenya National Bureau of Statistics
KOFC	Kenya Ordinance Factories Corporation
KSPFS	Special Programme for Food Security

KTDA	Kenya Tea Development Authority
LIFDC	Low Income Food Deficit Country
MODE	Market Oriented Dairy Enterprises
NAAIAP	National Accelerated Agricultural Input Access Project
NAFARL	Nigerian Army Farms and Ranches Limited
NALEP	National Agriculture and Livestock Extension Programme
NCPB	National Cereals and Produce Board
NDC	National Defense College
NDU-K	National Defense University - Kenya
NERICA	New Rice for Africa
NGO	Non Governmental Organisation
NSOs	National Security Organs
NSPO	National Service Project Organisation
PBDAC	Principal Bank for Development and Agricultural Credit
PPP	Public-Private Partnership
PSDA	Promotion of Private Sector Development in Agriculture
SDCP	Small Holder Dairy Commercialisation Programme
SHEP	Small Holder Horticulture Empowerment
SMEs	Small and Medium Enterprises
USA	United States of America

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 Background to the Study

The United Nations Committee on World Food Security defines food security as “all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life.”¹ The Food and Agriculture Organisation (FAO) perceives food security in four areas in relation to food: Access, availability, supply stability, and nutrition quality.² From these foregoing definitions, food security is increasingly becoming hard to actualize in many countries, given the constellation of challenges that are posed by today’s world. These include a rising population against dwindling food and farming resources, the threat of climate change over food production systems and overall inefficiencies, corruption and wastage in the food production sector. Food insecurity or hunger are ready recipes for chaos and unrest in any part of the world.

A report emanating from the National Intelligence Council of the United States of America (USA) prioritized food security as a concern of national security of the country.³ It was established that countries that cannot service the food demands of their populations threaten the security within their territories and regions, together with the interests of the USA. A statutory provision of the Global Food Security Act of the USA states, “It is in the national

¹ O’Kane, Gabrielle. "COVID-19 puts the spotlight on food insecurity in rural and remote Australia." *The Australian Journal of Rural Health* 28, no. 3 (2020): 319.

² FAO Policy Brief Issue 2 2006 p. 1.

³ Walls, Helen, Phillip Baker, Ephraim Chirwa, and Benjamin Hawkins. "Food security, food safety & healthy nutrition: are they compatible?." *Global Food Security* 21 (2019): 69-71.

interest of the United States to promote global food security, resilience, and nutrition, consistent with national food security investment plans”⁴

1.1 Statement of the Research Problem

Countries around the world are grappling with climate change, rising populations versus decreasing food reserves, raging costs of fundamental goods such as oil and wheat, and more recently, the COVID-19 pandemic and its associated effects in all sectors of the economy. All these pose a grave threat to the achievement of food security. Demoralized farmers, endemic corruption, greed, incompetence, failed policies and lack of innovativeness to stay on top of the game by governments has put countries in a precarious situation in the area of food security. Though food security is primarily a civil activity, deployment of the military in this sector has seen significant changes in the food security situation of countries around the world despite the existence of some constraints. The key question of this study therefore is: what is the role of military forces in national food security strategies?

1.2 Research Questions

1. What is the contribution of the military to food security in Kenya and Egypt from 2010?
2. What facilitative environment can be created for effective involvement of the military in food security programmes in Kenya and Egypt?
3. What are the constraints to effective participation of the military in achieving food security in Kenya and Egypt?

⁴ U.S. Congress, “House Rpt. 114-482: Global Food Security Act of 2015,” (Washington, DC: U.S. Congress, 2016), Sec. 2.

1.3 Objectives of the Research

1. To assess the contribution of the military to food security in Kenya and Egypt from 2010.
2. To establish the factors contributing to a facilitative environment for effective involvement of the military in food security programmes in Kenya and Egypt from 2010.
3. To investigate the constraints to effective participation of the military in achieving food security in Kenya and Egypt from 2010.

1.4 Literature Review

This section intends to analyse previous literature that has been developed on the subject of the military and food security. The section commences with a history of the military and food security. It then discusses the contribution of the military to national food security, and the factors that constitute a facilitative environment for effective involvement of the military in food security. Lastly, it discusses the constraints that hinder effective participation of the military in achieving food security.

1.4.1 State of Food Security in Africa

Globally, food and nutrition security is one of the priority goals; with food security being qualified as achieved when all people at all times can physically and economically access safe, sufficient and nutritious food that can make them access their food preferences and dietary needs for a healthy life.⁵ As much as a quarter of the entire population of the world is affected by food security⁶. A study conducted in Punjab in Pakistan found that 27% of the sampled households were food insecure.⁷

⁵ FAO. (1996). Rome Declaration on World Food Security

⁶ Abbasi, N., Ghoochani, O. M., Ghanian, M., & Kitterlin, M. (2016). Assessment of Households' Food Insecurity through use of a USDA Questionnaire, (October). <https://doi.org/10.15406/apar.2016.04.00155> p. 65

⁷ Khalid, M., Schilizzi, S., & Pandit, R. (2012). The Determinants of Rural Household Food Security for Landless Households of the Punjab, Pakistan. P. 233

In Sub-Saharan Africa, on average, 30% of the population faced food insecurity, with wide variances being recorded from nation to nation. For instance, over 80% of Rwanda's rural population is food insecure as it depends on small holder subsistence farming.⁸

A study in Bono State Nigeria established that 58% of sampled households were not food secure,⁹ while another in North Central Nigeria established 51.8% of such households. In Telyayen, Ethiopia, 79.1% of households were established to be food insecure while in northern Ghana, it was established that the documented staple food stock could not last an entire year¹⁰.

In Kenya, there has been chronic food shortages commencing from the post-election violence of 2007-2008 with approximately 3.8 million people (about 10% of the population) experiencing chronic food shortages.¹¹ A study by Chege in Kilifi Sub-County found that 80% of the households were food insecure; with the main influencing factors being age, education, and income levels of the household head, number of household members and marital status¹². A study in Laikipia established that 23% of households were food insecure while a study by the Governemnt of Kenya found that 68% of rural coastal communities were food insecure.¹³ Another study in Uasin Gishu revealed that 41% of the elderly were undernourished, exposing chronic food insecurity.¹⁴

⁸ Nsabuwera, Vincent. "Social-Economic Determinants of Food Security among Smallholder Farmers in Burera District, Rwanda." PhD diss., JKUAT-AGRICULTURE, 2019. P. 45

⁹ Talba, Jibril Musa, and Umar Babagana Imam. "Unimaid Microfinance Bank, Agent Of Poverty Reduction In Borno." p. 79.

¹⁰ Karamba, Wendy R., Esteban J. Quiñones, and Paul Winters. "Migration and food consumption patterns in Ghana." *Food policy* 36, no. 1 (2011): 41-53. p. 46

¹¹ Salami, Adeleke, Abdul B. Kamara, and Zuzana Brixiova. *Smallholder agriculture in East Africa: Trends, constraints and opportunities*. Tunis: African Development Bank, 2010. p. 67.

¹² Ibid p. 86.

¹³ Bond, Jennifer. "Conflict, development and security at the agro-pastoral-wildlife nexus: a case of Laikipia County, Kenya." *Journal of development studies* 50, no. 7 (2014): 991-1008.

¹⁴ Bore, Cynthia. "Assessment Of Determinants Of Under-Nutrition And Food Security Among The Elderly In Moiben Sub-County, Uasin Gishu County." PhD diss., University of Eldoret, 2019.p. 112

In Kenya, 27% of the GDP comes from agriculture, and many Kenyan households spend a lot of money on food and this thus is an indicator of vulnerability and poverty exposing food insecurity¹⁵. Three quarters of the work force in the agriculture sector in the country constitutes women, but they encounter challenges in land tenure, and other gender related barriers; this negating food production in the country.

1.4.2 Measures by Government of Kenya towards Food Security

Kenya's Special Programme for Food Security (KSPFS) was developed in 2002 and it relied on the Poverty Reduction Strategy Paper and the Kenya Rural Development Strategy, both of which outline the measures for alleviating Kenyan poverty, putting in mind that majority of Kenyans stay in the rural areas where agriculture is the mainstay.¹⁶

The programme focuses on 15m absolutely poor rural farmers, fisher-folk and farmers. This is done by encouraging and supporting farmers and community based organizations to improve agricultural production and other income generating activities.

However, required resources should be invested in research and extension, land consolidation in rural areas, drought resistant crops advocacy, enhancement of information management systems, together with food stock management systems and behavior change communication on food preferences and lastly encouragement of agricultural shows and demonstrations.¹⁷

¹⁵ Gitau, Raphael, Simon C. Kimenju, Betty Kibaara, James K. Nyoro, Michael Bruntrup, and Roukayatou Zimmermann. *Agricultural Policy-Making in Sub Saharan Africa: Kenya's Past Policies*. No. 680-2016-46763. 2008. p. 33

¹⁶ Stucker, Sara. "Johnston High School, Iowa Caring For Kenya Imagine living in a country where ethnic clashes break out daily, where 31% of the population is undernourished, and around 5.6 million are defined as 'food insecure' (World Food Programme). Sub."p. 89.

¹⁷ National Research Council. *Toward sustainable agricultural systems in the 21st century*. National Academies Press, 2010.p. 147.

1.4.3 KDF Infrastructure, Modernization and Food Security

The Kenyan Defense Forces (KDF) acknowledges infrastructure development as a key driver for progress and a critical enabler for productivity and sustainable economic growth. As Kenya become more urbanized, delivery of public goods, food included become easier and cheaper to the population.¹⁸ The KDF is a well-resourced entity that is capable of undertaking a considerable amount of civil works that can help alleviate poverty and spur economic development. In the KDF, the lead role in Infrastructure development is played by the Infrastructure Branch at the Defence Headquarter which is responsible to develop, maintain and upgrade military infrastructure across Kenya. Through this Branch, major construction and renovation projects are underway and others planned, along with repairs and rehabilitations, and upgrades to infrastructure at units, garrisons and bases. The Branch is also the lead in some humanitarian civil activities, e.g. drilling boreholes, building water pans, etc. for public institutions and communities faced with challenges of obtaining water.¹⁹ The Kenya Army Corps of Engineers similarly engages in horizontal construction i.e. roads, bridges and dams can construct up to 80km of tarmac roads, and up to 80 dams per year²⁰ and has recently been involved in the renovations of the Kenya meter gauge railways from Nairobi – Nanyuki - Kisumu; with several other projects being undertaken simultaneously.

The Borehole Drilling Engineers Brigade can drill 96 boreholes per year and it is capable of managing or preventing disasters in flood control, road and bridge construction and water provision.²¹ The Transport Battalion, a core unity of the Kenya Army Corps of Transport is capable of undertaking any transportation activities on economic development and poverty

¹⁸ Maj Ochieng J. Infrastructure Development and Modernization; A New Frontier. Majeshi Yetu, Vol 21, 2021. p. 8

¹⁹ Ibid

²⁰ Kibicho, Francis M. "The role of military in national development: a case study of Kenya." PhD diss., 2005.p. 34

²¹ Ibid

alleviation and at full capacity, it can comfortably transport over 1000 tons of supplies any time.²²

The Kenya Ordnance Factories Corporation (KOFC) is a State Corporation under MOD, and the Kenyan foundation of defence industries for production of desired capabilities. KOFC was established under Legal Notice No. 125 of 23rd July 1997, purposed to manufacture hardware, machinery and equipment and may engage in other activities normally connected with and incidental to the said purpose. Due to limited resources, KOFC has still not sufficiently diversified and exploited its industrial potential and there has need to increase its capabilities.

Apart from small arms ammunition production, KOFC engages in ration production i.e. dehydrated vegetables (Gilgil Factory), water bottling (Thika Factory), confectionery production (Eldoret, Gilgil and Moi Air Base Bakeries) and maize milling (Eldoret). KOFC also fabricates the award winning DEFKITCH (K) – 2012 in the Eldoret Factory, which is a highly efficient energy conserving multirole mobile field kitchen innovated, developed and mainly used by KDF. Development of other MOD initiatives especially on textile and repair workshops have also not been sufficient to support the establishment of a defence industrial base in the respective sectors.

The Medical Corps recognizes Health Security as the capacity to minimize susceptibility to Public health Therats such as Emerging Infectios Diseases (EID), pandemics, bioterrorism, malnutrition and disease outbreaks.²³ It can conduct large medical camps constituting of several and varied medical specialists. Patients can then be screened, given medical and

²² Ibid p. 37

²³ Lieutenant Colonel (Dr) Githua A. Conceptualizing Global Health and Military Medical Intelligence towards National Security; A New Frontier. Majeshi Yetu, Vol 21, 2021. p. 10

surgical treatment or referred in established hospitals. The Medical Corps can simultaneous outreaches at least twice a month to communities that neighbor military barracks.²⁴

The Sentinel Assistance medical services are outpatient services for local civilians in military hospitals or medical centres for free and mostly involve general counseling and Voluntary Testing and Counselling. An increase in specialists and psychiatrists would operationalize this function.²⁵

Special Assignment Medical Services are undertaken by the Medical Corps to assist the Health Ministry; including provision of medical services in hard to reach areas and to nomadic communities. Emergency medical treatment and routine national vaccinations can be offered by this team after human resource, medicine and equipment shortages are addressed.

The Kenya Air Force has provided supportive services in casualty evacuation, medical evacuation, pest control, disaster prevention and management and firefighting. The force has also been airlifting relief supplies. The Kenya Navy has Landing Craft Logistic Ships with a capacity for 600 tonnes of cargo, 240 tonnes of water, 300 tonnes of fuel and 360 persons.²⁶

The main challenge to the exploitation of the capabilities of the Kenya Armed Forces in the budget which is capped at 1.8% of the national budget and thus mostly goes into emoluments and equipment / facility maintenance.²⁷

In September 2020, the President of the Republic of Kenya issued an Executive Order for the transfer of the Kenya Meat Commission (KMC) to KDF. The KMC is envisaged as a Commission with the biggest and most modern licensed export abattoir in East, Central, and the Horn of Africa capable of supplying top quality meat products to local and international

²⁴ Kibicho, Francis M. "The role of military in national development: a case study of Kenya." PhD diss., 2005 p. 38

²⁵ Ibid

²⁶ Ibid.

²⁷ Ibid p. 41

markets. At the height of its operations, KMC supplied meat products to major towns in Kenya. The market segments included government institutions, private institutions, supermarkets, KMC franchised butcheries and individual customers. Export markets included the Middle East (U.A.E, Kuwait, Qatar, and Saudi Arabia); East Africa (Tanzania, Rwanda, and Uganda); Central Africa (Democratic Republic of Congo); North Africa (Sudan, South Sudan, and Egypt) and Southern Africa (Angola).²⁸

However, the Commission had irregular operations over the years and registered losses over the years, until its transfer to the military and revamping by the state. ²⁹ The management of the parastatal by the military effected the deployment of specialized military officers to inject much needed professionalism into its operations giving it a turn around to be make the largest profits in its history since inception.. It therefore constitutes a major success story of the KDF in food security achievement.

1.5 Gaps in the Literature

The foregoing review of the literature shows various gaps. Most of the literature examines the general role of the military in development, but not in food security to be specific. In addition, most studies on food security have tended not to focus on the role of the military in achievement of the same. This study therefore seeks to concretely examine the role of the military in food security initiatives by drawing a comparison of Egypt and Kenya.

1.6 Justification of the study

Food security is a prime goal that all governments seek to achieve. This is because, without food security, deaths, malnutrition and civil unrest, and worse still, revolutions, have been the effect of food insecurity in the past in some countries. As nations strive to achieve food security,

²⁸ Kenya Meat Commission Business Plan, 2020

²⁹ Ibid p 21

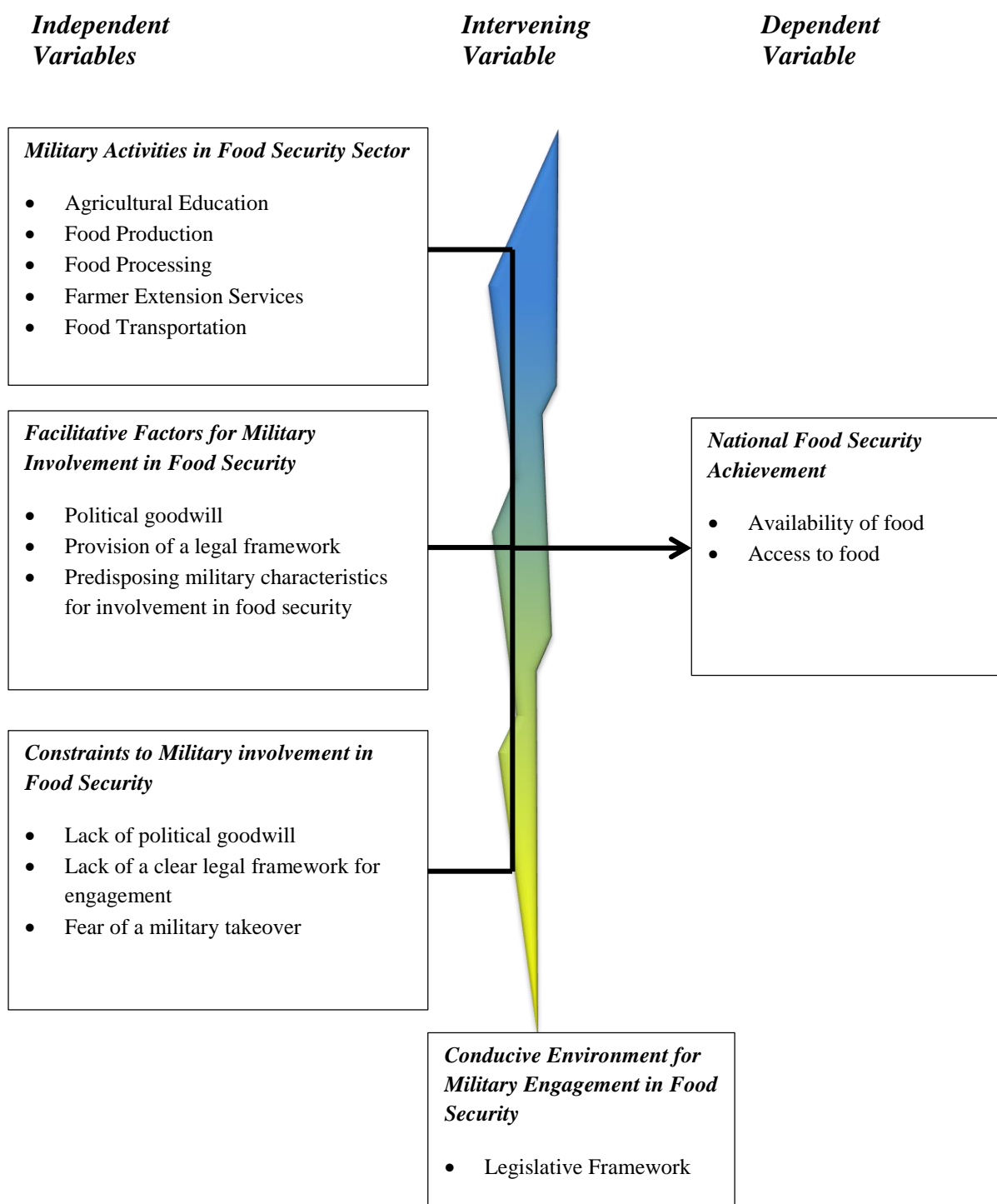
they are faced with a variety of means to employ to attain the goal. The military, in times of peace, provides an organized, disciplined and infrastructure-rich institution that can be meaningfully engaged to ensure that nations achieve food security.

This study therefore seeks to holistically examine the role of the military in achieving food security; and how the military can be smoothly integrated in the food security affairs of a country.

1.7 Conceptual Framework

The conceptual framework for this study is captured in Figure 1:

Figure 1: Conceptual Framework



In the foregoing conceptual framework, the dependent variable is national food security, which relies on the activities that the military can undertake in food security such as agricultural

education, food production, food processing and farmer education services; some facilitative factors for the military to operate in food security initiatives such as political goodwill, availability of a legal framework to enable the military to engage in food security initiatives, and the predisposing characteristics of the military that make it easy for it to work in other sectors including food security. The last independent variable is constraints to military involvement in food security based on lack of political goodwill, lack of a clear legal framework for military engagement in food security and fears of the militarization of a country. The intervening variable is a comprehensive legislative framework for military participation in food security.

1.8 Hypotheses of the Research

This research was based on the following three null hypotheses:

- H₀₁: There has been no significant contribution that has been made by the military to food security in Kenya and Egypt from 2010.
- H₀₂: There has been no facilitative environment for effective involvement of the military in food security programmes in Kenya and Egypt from 2010.
- H₀₃: There have been no constraints to effective participation of the military in achieving food security in Kenya from 2010.

1.9 Methodology of the Research

This research adopted the descriptive research design. Descriptive research seeks to describe a given phenomenon and its peculiarities or characteristics. It mostly seeks to account for what has happened, rather than the way something has happened or why it has happened. The issue under consideration in this study is the role of the military in food security policies in Kenya and Egypt. This study therefore seeks to document and assess this role, examining its

facilitative factors and its restraints in addition. To facilitate this, survey tools such as questionnaires were used to collect data.³⁰

The population of this research entailed government entities: military as well as food security-related government ministries, department and agencies. These covered the two countries that are covered by this study, i.e. Egypt and Kenya. The required departments were identified and sampled for consideration in the document analysis process. A sample of 10% to 30% of the target population was reached by document analysis.³¹

The data collection tool that was employed was a document analysis guide which contained the key issues or themes that were due for extraction from the documents based on the objectives of the study. Both the documents generated by these agencies together with those generated by other people about the said agencies were examined.

Data was analysed according to the study's variables and the Statistical Package for the Social Sciences (SPSS) was employed for quantitative data. For qualitative data, analysis was done using themes and keywords. NVivo software was used to analyse qualitative data.

1.10 Scope and Limitations of the Research

The scope of this study is the food security policies and activities in Egypt and Kenya and how the military is involved in the execution of the said policies. The research also limited itself mainly to state actors (the military, government ministries and agencies, and parastatals), while a few private entities were considered.

³⁰ Gall, Meredith Damien, Walter R. Borg, and Joyce P. Gall. *Educational research: An introduction*. Longman Publishing, 1996.p.150.

³¹ Ibid. p.168.

This study is limited to the food security sector, and to two countries, Kenya and Egypt. The study also dealt with document analysis alone as it is a secondary type of research. It was therefore not involved in collecting data from primary sources such as survey respondents.

1.11 Chapter Outline

Chapter One has commenced with a background to this study, where the concept of food security has been discussed. Food security initiatives have also been discussed from Egypt in this section. This has been followed by the statement of the problem, alongside three research questions and three objectives of the research. A literature review covering the three main themes of the study has then been undertaken. The justification and theoretical and conceptual framework of the study have also been tackled, including a diagram showing the relationship between the research's variables. The chapter ends with a discussion of the methodology of the study and its scope and limitations.

Chapter Two assesses the contribution of the military to food security in Kenya and Egypt from 2010.

Chapter Three examines the factors that contribute to a facilitative environment for effective involvement of the military in food security programmes in Kenya and Egypt from 2010

Chapter Four investigates the constraints to effective participation of the military in achieving food security in Kenya and Egypt from 2010

Chapter Five summarizes the findings of the study and draws conclusions and recommendations.

CHAPTER TWO

THE ROLE OF THE MILITARY IN FOOD SECURITY IN KENYA AND EGYPT

2.1 Introduction

The military in many African countries, Kenya and Egypt included, play various roles in food security initiatives. This section assesses the military initiatives in Egypt and those in Kenya that relate to food security.

2.2 Role of the Military in Food Security and related initiatives in Africa

Despite all African countries having standing and functional armies, they all face more internal threats than external ones, ranging from poverty, health, hunger / food insecurity, radicalization / violent extremism, infrastructural development, among others. Food shortages are rife in many countries, together with the associated consequence of malnutrition. The East African region is experiencing the worst drought in six decades, with the UN estimating that 10 to 12 million people are in danger of being wiped out by starvation.³² Other issues facing nations on the continent include cross-border criminality issues – drugs, arms and human trafficking. The war on terror has also been on the radar of the countries of the continent. Others are youth unemployment, overpopulation, desertification, corruption and political differences.

All these problems require solutions by African governments – and solutions need to be efficient and cost effective. Therefore, resources such as the military can be mobilized towards solving the problems that if left unsolved cause underdevelopment. The military has to be brought into play because the public and private sectors may not be enough to solve the problems.

³² Galvin, Kathleen A., Philip K. Thornton, Randall B. Boone, and Jennifer Sunderland. "Climate variability and impacts on East African livestock herders: the Maasai of Ngorongoro Conservation Area, Tanzania." *African Journal of Range and Forage Science* 21, no. 3 (2004): 183-189.p. 186

Quiet corruption has become one of the main maladies of African countries, which the world bank describes as a state where public servants fail to deliver services or inputs that have been paid for by the government. For instance, in many African countries, 15% to 25% of government-paid school teachers do not turn up for work,³³ while most most fertilizer that is distributed to farmers by state agencies has dilute nutrients. In both cases, quiet corruption leads to poor educational outcomes and poor food security respectively.

In many African countries, the private sector in many sectors is stunted such that it may not be competent enough to address any gaps in terms of employment and service provision. Due to lack decreasing Foreign Direct Investment (FDI) and lack of state assistance, the private sector in many countries has not registered meaningful growth. In fact, by 2010, FDI in Africa constitutes 10% or less of all the FDI in third world countries.

Due to the close connection between the problems and solutions, it is impossible for African governments to solve them without outside assistance; and the more they are neglected, the more they worsen. By this, there is a gap between the population's needs and the resources that the public and public sectors can commit to addressing the problems.

During peacetimes, African militaries have an entire range of resources that can address the foregoing challenges, such as aeroplanes for delivering food, doctors and medicine, and experts for building infrastructure. subject to availability, these resources must be utilized in contributing to enhanced developmental outcomes in African countries.

2.3 Overview of Food Security in Egypt

Egypt's constitution 2014 in Article 79 guarantees all citizens a healthy and sufficient amount of food, and the government has accordingly increased spending on food subsidies and cash transfers to reduce the economic burden on the most vulnerable. The country's Sustainable

³³ Fyfe, Alec. *The use of contract teachers in developing countries: Trends and impact*. Geneva: ILO, 2007.p.16

Development Strategy – Vision 2030, food security is one of the top priorities of its Economic Development pillar.³⁴ The Vision also vouches for a transition to sustainable agriculture and upscaling of livestock, poultry and fish production. The main challenges to the country's food security are discussed as follows.

2.3.1 Rapid Population Growth

The country has a new-born median of 3.1 newborns with a population size of 101 million people. The ideal median projected by the country is 2.4 newborns with a population size of 110 million people by 2030.³⁵ The country's population is projected to reach 150 million people, and this will increase the pressure on the country's financial and natural resources.

2.3.2 Food Inaccessibility and Unaffordability by the Poor

The volatile food price situation in Egypt has forced the poor to adjust their diets accordingly. The price spikes are usually accompanied by buying power erosion, which can push families into poverty. Poor families therefore consume less fruit and vegetables, and more refined foods when compared with high-income households.³⁶ While food price policies seek to improve nutritional quality of diets, they may also lead to an increase in socio-economic inequalities in terms of nutrition.

³⁴ Tellioglu, Isin, and Panos Konandreas. "Agricultural policies, trade and sustainable development in Egypt." *Geneva: International Centre for Trade and Sustainable Development (ICTSD) and Rome: United Nations Food and Agriculture Organization (FAO)* (2017).p. 264

³⁵ Mazloun, Alaa, Abdelrahman Rizk, Norhan Muhab, and Zainab Asal. "Addressing Food Insecurity in Egypt: Towards Sustaining Food Access for All/ (2021).p.63

³⁶ Darmon, Nicole, and Adam Drewnowski. "Does social class predict diet quality?." *The American journal of clinical nutrition* 87, no. 5 (2008): 1107-1117.

2.3.3 The Threat of Climate Change

Climate change has a direct bearing on many countries' agricultural productivity and food supply chain, and Egypt is one of the countries that are more affected by the phenomenon. Desertification and urbanization on agricultural land together with rising sea levels and land drought have serious challenges to the country's efforts to achieve food security. This therefore means that there should be immediate measures of mitigation and adaptation to neutralize the expected negative consequences. Urbanization is found to have cost the country over 900km² of fertile agricultural land in the Nile Delta in the last two decades.³⁷ Egypt has tried to reclaim land outside the delta to push the country's food security agenda, with about 12,000km² of land being reclaimed. This costly and challenging process has led to lower fertility land which is poor at water retention.³⁸

The country therefore needs to develop and implement the required land-use and urban planning strategies for long term security and sustainability in the country. The projections that wheat and maize production will reduce by 15% to 19% respectively by 2050 due to water stress, pests, temperature rise and other factors such as the inundation of 12% to 15% of the Nile Delta's fertile land due to salty water intrusion and the rising sea-level are all negative pointers to the food security situation in Egypt.³⁹ More crop pests, livestock diseases and weed infestations are also expected to increase. Lastly, economically, climate change constitutes a major challenge for about a third of the country's labour force in agriculture; a resilience building strategy is therefore required to support them.

³⁷ Radwan, Taher M., G. Alan Blackburn, J. Duncan Whyatt, and Peter M. Atkinson. "Dramatic loss of agricultural land due to urban expansion threatens food security in the Nile Delta, Egypt." *Remote Sensing* 11, no. 3 (2019): 332.

³⁸ *Ibid.*

³⁹ Mahmoud, M. A. "Impact of climate change on the agricultural sector in Egypt." *Conventional Water Resources and Agriculture in Egypt* (2017): 213-227.

2.3.4 Food Wastage

According to the Food and Agriculture Organisation (FAO), Food Loss and Waste (FLW) in the Near East and North Africa cost over USD 60 billion. Fruit and vegetable wastage accounts for 45% to 55% of the annual wastage of annual productivity.⁴⁰ Each Egyptian on average dumps 50 kilograms of food annually, particularly during festivals and holidays. FLW ranges between 15% and 45% in Egypt. (FAO, 2019). The loss of tomatoes, wheat, potatoes and milk has reached 30%, 12.8%, 20.4% and 20% respectively, and this is a direct threat to food security.⁴¹ It is therefore important for the country to arrest food wastage so as to curb food insecurity.

2.3.5 Retrogressive Agricultural Policies

The country has had retrogressive policies that included crop area allocations, crop rotation schedules, subsidized consumer prices and compulsory quantity delivery quotas at prices that were below the international markets. These caused agricultural slowdown, to the farmers' chagrin, the cropping patterns were distorted and caused a drop in yields and exports. Further, farmers received reduced earnings because of higher taxes. However, the Structural Adjustment Programmes of 1991 granted farmers to plant whatever they wished, and freed them from compulsorily selling their produce to the state. This led to increased rice production that worsened the already existing water deficiency problem. (Kassim et al., 2018).

Food security is a major headache for planners globally, with the world population being projected to rise to 9 billion people that will need feeding. Countries that are net food importers, particularly 26 African countries out of 33 worldwide are hardest hit as they will require food

⁴⁰ Boliko, Mbuli Charles. "FAO and the situation of food security and nutrition in the world." *Journal of nutritional science and vitaminology* 65, no. Supplement (2019): S4-S8.p.6

⁴¹ Ibid.

assistance from outside their borders.⁴² This is caused by crop failures, high food prices and conflicts.

The Middle East and North African countries suffer from malnutrition in the form of undernutrition, overweight and obesity. Overweight and obese cases constitute half of the populations in the countries, with 16.9% of children being stunted and 7.3% of them being overweight. Egypt is a Low Income Food Deficit Country (LIFDC) that has high poverty and unemployment indices – 17% of Egyptians suffer from food insecurity.⁴³ The country additionally has a child stunting rate that is higher than the regional average and is between 28% and 58%.

Low food supply is complemented by imports; for this reason, Egypt imports 50% of its wheat needs and is therefore the world's largest wheat importer. This makes the country highly vulnerable to international food price volatility that in turn occasions increased budgets on the part of the government and commensurate increased cost of living by the population. The population therefore suffers from under nutrition and poverty.⁴⁴

The main product that Egypt makes from the imported wheat is subsidized bread, as food subsidies are critical to the social protection programmes in the country. This product however is dangerous to poor Egyptians who over rely on it as it is energy rich but nutritionally poor on carbohydrates. This leads to obesity and malnutrition.

5% of the population is under nourished while poor nutrition is the cause of stunting of 40% of the adult population.⁴⁵ Since poor households in the country have a poor diet that is based on cheap food and cereals, 35% of the population suffers from poor access to food that results in

⁴² Sasson, Albert. "Food security for Africa: an urgent global challenge." *Agriculture & Food Security* 1, no. 1 (2012): 1-16.p.7

⁴³ Ramadan, Racha. "Food security and its measurement in Egypt." *CIHEAM Watch Letter* 32 (2015).p.24

⁴⁴ *Ibid.* p. 26

⁴⁵ Freistein, Katja. "Effects of indicator use: a comparison of poverty measuring instruments at the World Bank." *Journal of Comparative Policy Analysis: Research and Practice* 18, no. 4 (2016): 366-381.

poor dietary diversity. At 65% the share of dietary energy emanating from roots, tubers and cereals was higher than the world average of 52%.⁴⁶ Whereas the Gross Domestic Product (GDP) of the country increased by 37% in the years between 2000 and 2013, there was an accompanying increase of the domestic food price index that resulted in reduced access to food, particularly for poor households where food expenses constitute half of their entire expenses. This therefore means that the poor households are also the most vulnerable to changes to their income or food prices.

2.4 Agricultural Policies in Egypt

This section discusses in details the agricultural policies that are pursued by Egypt. Failed or wrong policies have over the years not achieved the country's food security goal, and the policies had to be reviewed, particularly with the World Bank prescribed Structural Adjustment Programmes of the 1990s.⁴⁷

2.4.1 A History of Agricultural Policy in Egypt

Early in the 1960s, rural citizens and factory workers were central to the country's identity, with agriculture being central to the country's development policies. Then policies were based on equality to all through equitable income distribution and food provision to urban areas from rural and peri-urban areas.

Crop area allocations, crop rotation schedules subsidized consumer prices and mandatory produce delivery quotas and fixed prices that were below international market rates agricultural cooperatives monitored production, inputs and marketing together with coordinating credit provision and output quotas with credit banks in the agricultural sector. This interventionist structure caused stunted growth in the agricultural sector and farmers became frustrated by the

⁴⁶ Ibid.

⁴⁷ Easterly, William. "What did structural adjustment adjust?: The association of policies and growth with repeated IMF and World Bank adjustment loans." *Journal of development economics* 76, no. 1 (2005): 1-22.

low prices, leading to a drop in yields, a distortion in the cropping patterns, a fall in exports and an increase in food self-insufficiency. The food subsidy system became more strenuous on the government's fiscal arrangements, with the income gap between rural and urban households increased (ostensibly caused by taxes taking up more of farmers' gains through unrealistically low producer prices. The government responded by increasing subsidies on farm inputs, extending food subsidies to the rural households and initiating land reform that sought to redistribute land.

Commencing in 1986 and running into the 1990s, all the preceding retrogressive policies were swept aside by liberalizing policies on the economic front, and, in the process, the private sector began to play a greater role in the agriculture sector with a reduction in the government's role.

With these changes came the Agriculture Production and Credit Project (1987-1995) and the Agricultural Policy Reform Programme (1996-2002).⁴⁸ The Agriculture Production and Credit Project reduced subsidies for selected agricultural inputs; together with the removal of area allotments controls and pricing and marketing restrictions for major crops. A new law was also passed that privatized state-owned corporations such that they could be converted into holding companies where the government could be a joint shareholder.

When the Economic Reform and Structural Adjustment Programme by The International Monetary Fund and the World Bank was launched in 1991, there was an indirect impact on agriculture, with emphasis being laid on establishing a market economy rather than a state-controlled one.⁴⁹ The private sector therefore started to play a greater role in the value chain of agriculture, with mandatory crop rotations, subsidies on agricultural inputs and pricing and marketing controls all being removed.

⁴⁸ Kassim, Yumna, Mai Mahmoud, Sikandra Kurdi, and Clemens Breisinger. "An agricultural policy review of Egypt: First steps towards a new strategy." (2018).p.83

⁴⁹ Ibid p. 86

In the following section, the key current agricultural policies that are currently in place are discussed.

2.4.2 Water and Irrigation Policy

Four fifths of Egypt's total water supply is utilized in agriculture, with the main source being the Nile. Egypt's share has been determined from a bilateral agreement with Sudan (1959) as standing at 55.5 billion cubic metres per annum.⁵⁰ Some water is drawn from the underground Nile Aquifer and the Nubian Sandstone Aquifer, with less than 2% of the country's crops being rain fed.

The construction of the Aswan High Dam on the Nile River in 1971 ushered an era of perennial irrigation and long-term water reservoirs. Lake Nasser, created by the dam, has a storage capacity of 132km³.⁵¹ The dam stopped annual floods that resulted in unused water reaching the Mediterranean and guaranteed a minimum water flow per annum, while facilitating the reclamation of land on either bank of the Nile River.

On the policy side, Law 12/1984 tasked the government to deliver water as a public good to farmers by the government at no cost. The Ministry of Water Resources and Irrigation took charge of the water resources of the Nile River together with the canal system (*mesqas*) and its maintenance. The law also proposed the integration of the water flow past the *mesqas* with a water users created private system.⁵² This was a measure to reduce the government's involvement in the maintenance and operation of public irrigation systems and drainage services.

⁵⁰ Deng, Biong Kuol. "Cooperation between Egypt and Sudan over the Nile River Waters: The challenges of duality." *African Sociological Review/Revue Africaine de Sociologie* 11, no. 1 (2007). P.19

⁵¹ Mohammed, A., Khaled A. Abu-Taleb, Nasser H. Saleh, and Abd-Elraouf M. Ali. "Water Monitoring in Lake Nasser using Satellite data." p.9

⁵² Allam, M. N. "Participatory irrigation water management in Egypt: review and analysis." *Options Méditerranéennes Series B* 48.123-131 (2004).p.127

The Economic Reform and Structural Adjustment Programme was marked by the removal of most subsidies on agricultural inputs and a halt on the state's crop rotation policy, together with removal of agricultural pricing and marketing curbs. Farmers therefore could plant whatever they wished and were under no obligation to deliver their produce to the state. This caused a spike in rice production. The downside of this action is that the ministry struggled to maintain water canals since rice consumes a lot of water, mainly due to reducing budgets and tax returns.

On the whole, the country has to watch out for the hazards of a dry climate, the water needs of irrigated agriculture and increased dependence on Nile River irrigation, and, in the era of climate change, this scenario presents high vulnerability to climate change impacts.⁵³ Fluctuating water levels are a risk to yields, while the rise in the sea level causes increased intrusion of the sea water and increased salinity. While the country has set its eyes on its Sustainable Development Strategy i.e. Vision 2030, the country is acutely aware of the risks of climate change to its agricultural sector and economy.

2.4.3 Provision of Agricultural Inputs

After the Egyptian Revolution (1952) all villages had agricultural cooperatives to control farm input distribution i.e. strategic crops' seeds, pesticides and chemical fertilisers.⁵⁴ In the 1960s and 1970s, the cooperatives were useful in designing and implementing crop rotation schedules, alongside crop quota procurement and marketing of major crops.

Membership to cooperatives is compulsory from 1961 and annual subscription fees are deducted automatically from farmers' account. The Principal Bank for Development and

⁵³ Darwish, K. H., M. Safaa, A. Momou, and S. A. Saleh. "Egypt: land degradation issues with special reference to the impact of climate change." In *Combating Desertification in Asia, Africa and the Middle East*, pp. 113-136. Springer, Dordrecht, 2013.p.117

⁵⁴ Kassim, Yumna, Mai Mahmoud, Sikandra Kurdi, and Clemens Breisinger. "An agricultural policy review of Egypt: First steps towards a new strategy." (2018).

Agricultural Credit (PBDAC)⁵⁵ liaised with the cooperatives to provide credit to farmers, but when the cooperatives were phased out in the mid-1970s to early 1990, and the credit services and operations and facilities owned by the cooperatives were transferred to PBDAC.

In terms of seed, the government is a key player in seed production and distribution particularly of staple crops, though the policy reforms reduced state monopoly in the seed sector. Whereas Agriculture Law 53/1966 mandated the Agriculture Research Centre (ARC) with “controlling and regulating seed multiplication and production, domestic seed trade, and seed imports and exports” “. In the 1990s, the seed industry policy of the country sought to minimize the ARCs participation in seed production and sales. It was thus replaced by the Central Administration for Seed Production (CASP)⁵⁶ which was mandated with implementing new policy reforms for the seed industry. CASP was particularly to oversee the transfer of the public seed production centres to the private sector. CASP has a general seed marketing and distribution directorate that sets prices and markets seeds that it produces. Its market share is 100% for cotton barley and lentil, 82% for fava bean , 67% for wheat and 65% for rice.⁵⁷

Pesticides in Egypt have been the mandate of Agricultural Pesticide Committee which assesses, evaluates and registers them since 1966. The 1986 reforms heralded the end of pesticide subsidies, while also ending state monopoly on supply of pesticides to farmers.⁵⁸

The government, from 1999, allowed cooperatives to offer pest management services and sell their farmers pesticides, although the government still controls the sector by providing guidelines and standards and regulating the licensing of private pesticide companies.

⁵⁵ Yehia, Yehia Abd El-Rahman, and Doaa Mamdouh MM Soliman. "The Impact of Restructuring Principal Bank for Development and Agricultural Credit (PBDAC) on Financing the Agricultural Sector in Egypt." *Indian Journal of Economics and Business* 21, no. 1 (2022).

⁵⁶ Zakhary, Safwat Yousef, and Mohamed Ismail. "Restructuring Government Seed Centers into Private Small-scale Enterprises in Egypt." *Experiences of Existing Small-scale Seed Enterprises* (1997): 61-119.p. 98

⁵⁷ Ibid.

⁵⁸ Goldberg, Karen A. "Efforts to prevent misuse of pesticides exported to developing countries: Progressing beyond regulation and notification." *Ecology LQ* 12 (1984): 1025.

In the fertilizer sector, the Egyptian Government has always intervened in the fertilizer sector to increase farmers' access by keeping prices below world prices; this has led to higher than global scale usage of fertilizer. While the Principal Bank for Development and Agricultural Credit (PBDAC) was the key provider of fertilizer to farmers albeit on credit, the PBDAC and fertilizer subsidy were both phased out in 1992. From 1991, the government aggressively privatized the public sector, including fertilizer companies. By 2001, 75% of nitrogen and phosphate fertilizer production⁵⁹ were transferred to private companies.

Agricultural Credit: in Egypt, the main source of credit for farmers in the PBDAC. Established in 1931, the bank is dominant in the rural areas. It has been classified as a special bank under the ministry of agriculture and was exempted from the central Bank's reserve requirements prior to its restructuring in 2016. Cooperatives and other agricultural organisations were the main depositors, while loans were mostly financed by commercial bank loans at subsidized interest rates.⁶⁰ By 2014, PBDAC accounted for 70% of all lenders in the agriculture sector, although the sector did not still access adequate credit at 1% of the total lending compared to 38% and 26% for the industrial and services sectors respectively.

Demand for credit in the agriculture sector is mainly serviced by the informal sector in the form of rotating savings and credit associations, and they have services that the PBDAC may not be offering such as small, short-term loans. Female farmers are at a particular disadvantage as only 7% of them can access formal credit, compared to 12% for men. This is despite the main role executed by women in household and local market food production that accounts for three fifths of the country's food production.

⁵⁹ Ashra, Sunil, and Malini Chakravarty. "Input subsidies to agriculture: Case of subsidies to fertiliser industry across countries." *Vision* 11, no. 3 (2007): 35-58.p.42

⁶⁰ Baydas, Mayada M., Zakaria Bahloul, and Dale W. Adams. "Informal finance in Egypt: "banks" within banks." *World Development* 23, no. 4 (1995): 651-661.p.659

As part of reforms, the PBDAC was transformed for improved efficiency and commercial operations for rural Egyptians. In 2016, it was renamed the Egypt Agriculture Bank and was placed under the Central Bank's supervision, with the World Bank advising that it should be reorganized to incorporate interest rate subsidies for purposes of improving affordability of credit to farmers.⁶¹ The bank seeks to increase its clientele base to 7million farmers from 3 million farmers, through this is still a small fraction of all the farmers in the country.

Food Subsidy System: This system was developed by the Nasser regime and expanded in the 1950s to 1960s to enable all Egyptians to access basic commodities. The main thrust of the subsidy system was *baladi* bread, with the government, until recently, directly intervening at all levels of bread production. Leakages in the system forced the government to procure excess wheat.

In the 1970s, the number of subsidized commodities increased to 18 items. An attempt to remove the subsidies was violently resisted in 1977. In the 1980s and 1990s, the subsidies were gradually reduced to reduce the subsidy bill.⁶² There was incremental increase of the food items and items such as fish, meat and chicken were removed from the list of subsidized items from 1990 to 1992.⁶³ However, rising public discontent with rising food prices caused the government to move back into food subsidies, with the list including lentils and beans, and increased rations of sugar, rice and cooking oil were given out by government.

Due to the economic downturn after the 2011 revolution that ousted President Morsi, food subsidies took up a quarter of the Egyptian budget and 8% of the GDP from 2011/2012 to

⁶¹ Kassim, Yumna, Mai Mahmoud, Sikandra Kurdi, and Clemens Breisinger. "An agricultural policy review of Egypt: First steps towards a new strategy." (2018).

⁶² Löfgren, Hans, and Moataz El-Said. "Food subsidies in Egypt: reform options, distribution and welfare." *Food Policy* 26, no. 1 (2001): 65-83.

⁶³ Abdalla, Moustafa, and Sherine Al-Shawarby. "The Tamween food subsidy system in Egypt." *The 1.5 Billion People Question* (2017): 107.

2013/2014⁶⁴. While food subsidies were high, it was found that the targeting of the food subsidies system was poor, with 88% of Egyptian households accessing subsidized food.

From 2014, reforms were introduced including limiting ration cardholders, and, subsidizing bakeries' production costs rather than subsidizing the flour. This limited subsidized flour leakages into the black market. It also enabled the government to increase the number of subsidized goods to include milk, lentils, frozen beef, pasta, as well as non-food items like soap.

The country continues to upgrade storage facilities to reduce wheat leakage and wastage. In this respect, 40% of all the barns have been fixed in terms of ventilation and storage capacity expansion. More silos have been constructed to increase the state's wheat storage capacity.⁶⁵

2.4.4 Land Rent and Tenure

Egypt's laws of 1952, 1961 and 1969 have successively reducing the maximum amount of land an individual can own from 200 feddan to 100 feddan then to 50 feddan. Per individual and 100 feddan per nuclear family. By 1952, 65% of arable land belonged to 5.7% of the population.⁶⁶ From 1951 to 1970, 12.5% of the arable land (87,000 feddan) was sold to 342,000 farmers at prices below prevailing market prices.

Law reforms granted more rights to tenants, they could cancel leases and had pre-emption rights where the landlords wished to dispose of their lands. The current land regime has led to increased land fragmentation due to increased land sales to smallholders and due to inheritance under Islamic law. The current landholding is averaged at 0.8 and 0.9 feddans.

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Kassim, Yumna, Mai Mahmoud, Sikandra Kurdi, and Clemens Breisinger. "An agricultural policy review of Egypt: First steps towards a new strategy." (2018).p.73

2.4.5 Land Reclamation

Discoveries of groundwater in the desert have made land reclamation a reality in Egypt. Land reclamation in Egypt includes surveying of land, clearing of soils and removing impervious layers of the hard pan type, soil leveling and grading, installation of irrigation infrastructure, crop selection and design / implementation of crop rotation schedules and fertilizers/pesticide use. In terms of policy, reclamation includes planning, transition, economic and social development, handover and incorporation.⁶⁷

In the 1970s, land reclamation started in earnest with the completion of the Aswan High Dam which sparked a number of state desert development megaprojects. Currently, a quarter to a third of cultivated lands are classified as New Lands or reclaimed lands by the Ministry of Agriculture and Land Reclamation. The same ministry estimates that 1 million feddans have been reclaimed by peasants informally thus expanding arable land into the deserts on the edges of arable lands. (Sims 2015).

Critics of land reclamation initiatives by the state aver that the funds spent on reclamation would have instead been spent on improving the agricultural improvements in the Old Lands; claiming also that land reclamation comes with a plethora of environmental issues, such as groundwater contamination and depletion and loss of water quality.

2.5 Challenges in achieving Food Security in Egypt

From the foregoing overview it is justifiable to conclude that the food insecurity situation in Egypt is deteriorating. Increasing per capita income and urbanization together with high population rates are the major causes of increased food demand. The country faces decreased agricultural output, reduced water availability, climate variability food deficits and rising imports on the food demand side. With a high poverty rate of 26%, lack of access to food due

⁶⁷ Ibid.

to economic crises is the main cause of food insecurity in the country. Poverty has a positive relationship with lack of food security, whereby high unemployment, food price fluctuations and low earnings conspire to limit the access to food of most Egyptians. Because of this therefore, 12% of the population has, between 2009 and 2011, 12% of the population fell into food insecurity and income poverty.⁶⁸

Poor nutritional awareness, increasing wastage in food preparation, bad dietary habits and lack of access to clean water negatively affect the country's food security. On the other hand, agricultural production in the country is high along the Nile Delta and Nile Valley with lack of fertility and water limiting agricultural expansion. Challenges facing agriculture include soil salinization and desertification, climate change and urbanization. Construction work on agricultural land also constrains land availability, with 1% of this type of land decreasing due to construction in the greater Cairo and the Nile Delta. The other headache for Egyptian policymakers is poor quantity and quality of water. The Ministry of Water Resources and Irrigation reports that agriculture consumes 85% of the total demand for water.

2.6 An Overview of Food Security in Kenya

In developing countries such as Kenya, food security remains a mirage that is hard to achieve. Over 10 million people in Kenya suffer from recurrent food security and malnutrition, while two to four million of these require emergency food assistance from time to time.⁶⁹ 1.8 million children in the country are undernourished and the per capita daily energy intake is less than recommended.⁷⁰ Even in productive seasons, stunting affects 30% of children. This points to

⁶⁸ Sasson, Albert. "Food security for Africa: an urgent global challenge." *Agriculture & Food Security* 1, no. 1 (2012): 1-16.p.9

⁶⁹ Kimiywe, J. "Food and nutrition security: challenges of post-harvest handling in Kenya." *Proceedings of the Nutrition Society* 74, no. 4 (2015): 487-495.

⁷⁰ Masibo, Peninah K., and Donald Makoka. "Trends and determinants of undernutrition among young Kenyan children: Kenya Demographic and Health Survey; 1993, 1998, 2003 and 2008–2009." *Public health nutrition* 15, no. 9 (2012): 1715-1727.

poor diets (including macronutrients and micronutrients) inadequate food distribution inadequate feeding knowledge, and poor caregiving of children alongside chronic infections.⁷¹

2.7 Causes of Food Insecurity in Kenya

Food insecurity is caused by a constellation of factors in the developing world such as urban development, climate change, oil price changes, and population growth. The following therefore is a discussion in the causes of food insecurity in Kenya.

2.7.1 Rapid Population Growth

With a current population of 47.6 million in 2019, 38.6 million in 2009 and 28.7 million in 1999, Kenya's population has been increasing by about 10 million people every decade. With the country experiencing challenges in food production, food insecurity is bound to set in. the increased population causes pressure on food, land, clean water and energy; and in the context of reduced resources, there are bound to be resource conflicts and therefore increased food insecurity and hunger.⁷² This happens in the context of an aggregate decline in land size and fertility. The Arid and Semi-Arid Lands (ASALs) already experience this situation. Even in arable areas, land fragmentation to sizes that are not economically viable has occurred e.g. in Central Kenya, Kisii, Western and Nyanza regions, and this has reduced crop and livestock yields in these areas.

2.7.2 Rapid Urbanisation

The urban population of Kenya in 2021 was 28.5%, with a mean annual increase of 4.5% since 1970, when it was 11.3% of the total population. While the population of Nairobi is projected to reach 6 million in 2025, 60% of its residents live in slums that lack basic amenities including

⁷¹ Charlton, Karen E., and Donald Rose. "Nutrition among older adults in Africa: the situation at the beginning of the millenium." *The Journal of nutrition* 131, no. 9 (2001): 2424S-2428S.p.34

⁷² Ortiz, Isabel, and Matthew Cummins. "When the global crisis and youth bulge collide." *Double the Jobs Trouble for Youth* (2012).p. 266

sanitation, decent housing, education, clean water and healthcare. The increasing urban population poses a challenge to the state in terms of service provision and food security.

45% of slum dwellers cannot access clean water for drinking while 40% cannot access decent sanitary services.⁷³ About half of the incomes of slum dwellers is spent on food, which indicates increased vulnerability because of food price volatility against unstable wage work opportunities. Most slum dwellers are hence forced to fall back on negative strategies such as increased child labour, foregoing non-food expenses and skipping meals to keep their families alive.

2.7.3 Low Income

According to the UN, the Gross National Income (GNI) per capita for Kenya is \$1,760 US Dollars, which is low, compared with other middle-income countries. The low incomes are exacerbated by unequal income distribution in the population. As is the case with many developing countries, there is a high inequality in wealth distribution; inequality is highest in the rural areas. The richest 20% earn 62% and 51% of all incomes in the rural and urban areas respectively, while the bottom 20% earn 3.5% and 5.4% of rural and urban incomes respectively. Further, the country's top 10% household own 42% of the total income while the bottom 10% controls less than 1%.⁷⁴ Therefore, the poorest 10% have low effective food demand because of their low income and this implies that their households do not enjoy food security.⁷⁵

⁷³ Corburn, Jason, and Chantal Hildebrand. "Slum sanitation and the social determinants of women's health in Nairobi, Kenya." *Journal of environmental and public health* 2015 (2015).

⁷⁴ Emongor, R. A. "Food price crisis and food insecurity in Kenya." *Kenya Agricultural Research Institute* (2014).p.67

⁷⁵ Oluoko-Odingo, Alice Atieno. "Vulnerability and adaptation to food insecurity and poverty in Kenya." *Annals of the Association of American Geographers* 101, no. 1 (2011): 1-20.p. 11

2.7.4 Poverty

The 2020 Comprehensive Poverty Report by the Kenya National Bureau of Statistics (KNBS) shows that 15.9 million Kenyans are poor.⁷⁶ Of this population, 82% is in the rural areas while the rest is in the urban areas. Majority of the rural poor households constitute landless people and subsistence farmers who cannot access the prerequisites for food production and depend on providing labour for wages or food. Direct and indirect activities related to agriculture are the main employers of the rural poor. This food insecure category of Kenyans can neither produce enough food for themselves nor do they have the monetary power to purchase food from other producers. It is also notable that presently, communities in the ASAL areas of Kenya depend on relief food for subsistence.

2.7.5 Increasing Demand for Food Products for Biofuel Production

In the recent years, developed countries have ventured into biofuel production, with at least 100 million tonnes of food grains being processed into biofuels annually.⁷⁷ Kenya is a net importer of rice, wheat, maize and vegetable oils. The rising demand for biofuels puts the country at risk as a net food importer. High international cereals prices affect the domestic markets, and this is made worse by a weak Kenya Shilling.

2.7.5 Declining Agricultural Productivity in Kenya

Whereas the agriculture sector directly contributes 26% of the Gross Domestic Product (GDP) and contributes another 27%, it has been in general underperformance in the recent years.⁷⁸

⁷⁶ Mabiso, Athur, Karl Pauw, and Samuel Benin. "Agricultural growth and poverty reduction in Kenya: Technical analysis for the Agricultural Sectoral Development Strategy (ASDS)—Medium Term Investment Plan (MTIP)." *Regional Strategic Analysis and Knowledge Support System (ReSAKSS) Working Paper 35* (2012).p.111

⁷⁷ Bauer, Armin, Rana Hasan, Rhoda Magsombol, and Guanghua Wan. "The World Bank's new poverty data: implications for the Asian Development Bank." (2008).p.89

⁷⁸ Diao, Xinshen, Peter Hazell, and James Thurlow. "The role of agriculture in African development." *World development* 38, no. 10 (2010): 1375-1383.p. 1379

80% of the country's labour force is employed by the sector, and it generates 60% of the country's forex exchange earnings while providing industries with 75% of raw materials.

It is estimated that an increase of 1% in the agricultural GDP can result in a 1.6% increase in the country's economy. However, crop yields in the country are lower than world averages. The country's agriculture is monopolized by small-scale farmers who hold three quarters of the total agricultural produce and 70% of agricultural throughput. They produce 70% of coffee, 80% of milk, 90% of sugar, 85% of fish and 70% of beef in the country.⁷⁹ However, the smallholder farmers are most vulnerable to increases in farm input prices, taxation in the agricultural sector, increases in operating costs e.g. increases in diesel for tractors, and fluctuations in costs of agricultural imports occasioned by a weakening shilling. Low productivity means that the supply of agricultural produce has not been able to match the population growth rate that is pegged at 2.64%.⁸⁰

2.7.6 High Input Prices

Whereas inputs such as quality seed, fertilizer and agrochemicals are key to increased yields, prices of fertilizer have risen even higher than the prices of food globally. For instance, the cost of DAP fertilizer has risen from Kshs 1,750 per bag in 2007⁸¹ to Kshs 6,500 in 2022. This pushes fertilisers out of the affordability of smallscale farmers. When farmers fail to use modern inputs in agriculture, they realize poor yields and this results in food insecurity due to reduced food amounts in the market. Low food supply occasions higher food prices as per the dictates of demand and supply.

⁷⁹ Mohajan, Haradhan. "Food and nutrition scenario of Kenya." (2014): 28-38.p.34

⁸⁰ Strasberg, Paul J., Thomas S. Jayne, Takashi Yamano, James K. Nyoro, Daniel David Karanja, and John Strauss. *Effects of agricultural commercialization on food crop input use and productivity in Kenya*. No. 1096-2016-88433. 1999.p. 36

⁸¹ Ariga, Joshua, Thomas Jayne, Kibaara Betty, and James Nyoro. "Trends and patterns in fertilizer use by smallholder farmers in Kenya, 1997-2007." (2008).p.56

2.7.7 Decline in World Food Stocks

The trend over the last two decades has been that food supplies worldwide have dwindled, and therefore food prices have risen to historic highs. The production of certain crops has stagnated or declined, hence leading to declining of food stocks. Reduced food stocks mean an increase in food prices, and this adversely affects net food importing countries such as Kenya, which imports wheat, maize, cooking vegetables and rice.

2.7.8 Underinvestment in Rural Infrastructure

Lack of rural roads to transport inputs and produce to and from farmers' land holdings respectively contributes to food insecurity in the form of added transportation costs. Lack of proper storage facilities such as bulk storage means that farmers have to dispose of their produce at throwaway prices as they fear that their produce will rot away. Lack of electricity in the rural areas also means that value addition initiatives are largely absent in rural areas, and therefore farmers cannot get more from their produce. It also means that perishable agricultural commodities such as vegetables and fruits risk rotting and can thus not fetch higher prices. Despite the country having a good potential for irrigated agriculture, only a small portion of the country is irrigated, thus limiting opportunities for food production. Lastly, there are poor distribution channels between the areas that produce food and those that require it; this leaves some areas throwing away food because of excesses while others starve for lack of food.

2.7.9 Climate Change / Climate Variability

Kenya has witnessed devastating changes in its climate which have affected food production and occasioned food insecurity in both crop and animal production. Droughts and floods have become more common as the globe warms up. In Kenya particularly, poor natural resource management (forests and soils); which the country is ill-prepared to tackle. This has in turn caused food insecurity due to lack of mitigating measures.

2.8 Challenges to the Achievement of Food Security in Kenya

Challenges to the achievement of food security in Kenya are synonymous with the challenges in the agricultural sector. This is because challenges in the agricultural sector actually prevent the country from achieving food security. They may in part inform the decision by the government to involve the military in food security initiatives. The challenges include the following.

2.8.1 Poverty amid Growth

While it is reported that in the period 2005 to 2012, the percentage of Kenyans living below the poverty line dropped from 47% to 39%, inequality of incomes remains a challenge as 40% of the national income ends in the hands of 10% of the population. It was established that between 2013 and 2015, poverty decreased in eastern and northern parts of the country from 45% to 41% and from 61.9% to 58.5% respectively.⁸² In some of the poorest counties of the country, however, including Busia, Bomet, Kisii, Migori, Nyamira, Makeni, Kitui, half of the population lives in poverty.⁸³

2.8.2 Malnutrition and Stunted growth

Nationally, the country has recorded an 11% decline in stunting of children from 35% to 26% in 2008 and 2014 respectively. Whereas gains have been made in areas such as exclusive breastfeeding rates, stunting, underweight and wasting, there are still vast disparities at the regional level and pockets of serious malnutrition at county level.⁸⁴ Northern Kenya has less than 4% of its children receiving an acceptable diet. High stunting rates are linked to food

⁸² Jonah, Coretta MP, Winnie C. Sambu, and Julian D. May. "A comparative analysis of socioeconomic inequities in stunting: a case of three middle-income African countries." *Archives of Public Health* 76, no. 1 (2018): 1-15.

⁸³ Diwakar, Vidya, and Andrew Shepherd. "Understanding poverty in Kenya: A multidimensional analysis." (2018).p.42

⁸⁴ Matanda, Dennis J., Maurice B. Mittelmark, and Dorcus Mbithe D. Kigaru. "Child undernutrition in Kenya: trend analyses from 1993 to 2008–09." *BMC pediatrics* 14, no. 1 (2014): 1-13.p. 6

insecurity, poor sanitation and drinking water quality, poor dietary diversity, poor food quality (including aflatoxin infestation).

2.8.3 Gender and Women Empowerment

In the areas of resources, control over income, production, time use and leadership, only a third of women in Kenya have achieved full empowerment. This signifies that women remain disempowered and this makes the sustenance of agricultural growth and non-farm productivity increase together with reduction in malnutrition difficult.

2.8.4 Low Productivity and an Uncompetitive Agriculture Sector for Smallholders

Many smallholders depend on low-input, low-output, rain-based agriculture that is executed in small land holdings. Where livestock dominates, such as northern Kenya, there is governance and access issues in relation to natural resources, poor feeds quality, poor animal health and herd management have resulted in low productivity, compromising of the resource base and diminished sustainability of the livestock value chain.

Some areas of the country experience limited crop production due to poor access to, and usage of improved technologies and practices, and seed and irrigation technologies. Farmers in these times face emerging threats of pests and diseases such as the Fall Army Worm, Maiza Lethal Necrosis and recurring drought. Market access is also critical for incentivising farmers to invest more.

2.8.5 Land Tenure

In Kenya, climate change, population pressure and urbanization influence land tenure. While there is a strong legal and policy frameworks in the form of the Community Lands Act 2016 to empower communities on managing land tenure and use while protecting natural resources.⁸⁵ What is however required is the quick implementation of clear, simple and easily followed rules and regulations to document community land rights. Pastoral communities often ignore geographical boundaries, creating a situation where resources have multiple households or groups claiming management rights.⁸⁶ This is exacerbated by lack of title deeds and frequent land conflicts.

2.8.6 Enabling Environment for Agricultural Growth

The Constitution of Kenya 2010 tasks the National Agriculture Ministry with policy matters and devolves financial resources and implementation to the counties. This brings out a lacuna and lack of capacity on the part of the county governments in coordinating with the national government in operationalizing agricultural policy.⁸⁷

2.8.7 Barriers and Threats to Growth of Small and Medium Enterprises (SMEs)

Demand for livestock and crop products in Kenya creates immense opportunities for SMEs to establish themselves in the agricultural value chain. Limited capital and market access, inadequate knowledge and skills (much so among marginalized groups), poor infrastructure all limit SMEs from establishing themselves and prospering. Low productivity in the informal

⁸⁵ Alden Wily, Liz. "The community land act in Kenya opportunities and challenges for communities." *Land 7*, no. 1 (2018): 12.

⁸⁶ Haro, Guyo O., Godana J. Doyo, and John G. McPeak. "Linkages between community, environmental, and conflict management: Experiences from Northern Kenya." *World development* 33, no. 2 (2005): 285-299.p. 290

⁸⁷ Murugu, Pius M. "The challenges and opportunities of decentralized political systems: lessons for Kenya from India and Nigeria." PhD diss., University of Nairobi, 2014.p.74.

sector (accounting for 77.9% of employment) constrains firms' abilities to generate employment opportunities.⁸⁸

2.8.8 Lack of Affordable Financial Services

Smallholders, farmer groups and agribusinesses decry the lack of finance from the main lenders. This leaves the businesses and farmers with the option of using whatever little resources they have to carry out their ventures, irrespective of productivity outcome.⁸⁹

2.8.9 Climate Variability and Recurring Droughts

Three quarters of Kenya's labour force relies on agriculture, and almost all farmers depend on timely and sufficient rainfall for crop production and animal husbandry.⁹⁰ Only 2% of the land is under irrigation, while rainfall variability, intensive and off-season rains together with increasingly frequent droughts have all contributed to land degradation and made the impacts of drought worse. Climate variability impacts agricultural activities and markets related to crops, dairy and livestock value chains.

2.8.10 Food Safety

Many times, the best practices in food safety and adherence to trade standards are both lacking, particularly in produce traded in informal markets. Therefore foodborne diseases caused by bacteria, viruses and other pathogens affect human health while violate standards that then make the food from markets at all levels. Aflatoxin is the most serious source of concern in this respect.

⁸⁸ Kinyua, Anne Ngima. "Factors affecting the performance of Small and Medium Enterprises in the Jua kali sector in Nakuru Town, Kenya." PhD diss., Egerton University, 2013.p.56

⁸⁹ Shiferaw, Bekele A., Gideon A. Obare, and Geoffrey Muricho. *Rural institutions and producer organizations in imperfect markets: Experiences from producer marketing groups in semi-arid eastern Kenya*. No. 577-2016-39211. 2006.p.42

⁹⁰ Bryan, Elisabeth, Claudia Ringler, Barrack Okoba, Carla Roncoli, Silvia Silvestri, and Mario T. Herrero. "Coping with climate variability and adapting to climate change in Kenya: Household and community strategies and determinants." (2010),p.56

2.8.11 Instability, Conflict and Violent Extremism

After decades of underinvestment, recurrent crises, marginalization and population pressure, communities in Kenya are very vulnerable to interethnic conflicts or conflicts between pastoralists, farmers, owners of game reserves and ranches. Violent extremism also threatens the security needed for the country's economic transformation. Marginalized youth are all particularly vulnerable to violent extremism. Gender-based violence also seems to rise.⁹¹

2.8.12 Complexity of Risks affecting Malnutrition, Hunger and Poverty

The reality in Kenya is that poor and near-poor communities and households live in increasingly complex risk environments. They are therefore susceptible to threats to their food security, nutrition and capacity to escape poverty.⁹² These very situations have seen many households fall into poverty. Therefore there is need to increase resilience of countries, systems, communities and households to ensure a disentanglement from poverty.

2.8.13 Burgeoning Youth Population

Young men and women in the country constitute 35% of the population and, annually, a million of them join the labour force. Most young people are either out of the workforce or unemployed, with employment rates ranging between 22 and 39 percent across the ages and gender.⁹³ Of the employed, 80% and 71% of young men and women respectively who are 15 to 19 years old have low paying or vulnerable jobs i.e. in agriculture, unskilled work or domestic service.⁹⁴

⁹¹ Idris, Iffat. "Gender and countering violent extremism (CVE) in the Kenya-Mozambique region." (2020),p.9

⁹² Naylor, Rosamond L., and Walter P. Falcon. "Food security in an era of economic volatility." *Population and development review* 36, no. 4 (2010): 693-723.p. 699

⁹³ Muiya, Bernard Munyao. "The Nature, Challenges and Consequences of Urban Youth Unemployment: A Case of Nairobi City, Kenya." *Universal journal of educational research* 2, no. 7 (2014): 495-503.p.35

⁹⁴ Grant, Ursula. "Urbanization and the employment opportunities of youth in developing countries." *Background paper prepared for EFA Global Monitoring Report* (2012).p.13

2.9 Government Initiatives in achieving National Food Security in Kenya

The government of Kenya has undertaken various initiatives to ensure food security with varying measures of success. These initiatives are discussed as follows.

2.9.1 The Maize Subsidy and Marketing Policy

This policy is two-pronged: putting in place a subsidy on the price of maize to protect the vulnerable who may be in urban centres and in the rural areas; and marketing maize for the best price possible in the market to benefit farmers. This includes tax waivers for private sector importers, and a government programme to import maize to improve national supplies.⁹⁵

Other initiatives under this initiative include increasing the capacity of the Strategic Grain Reserve (SGR), and rebranding it to the Strategic Food Reserve (SFR) to include other types of foods such as powdered milk, hay, sorghum, millet and beans.⁹⁶

2.9.2 Njaa Marufuku Kenya Programme

This is a programme that targets communities that have been subsisting on relief food and through it, the government has been giving grants to schools and farmer groups for food production. Co-funded by the Food and Agriculture Organisation (FAO), this programme has seen Kshs. 327.6 million disbursed to 1,866 groups, 35 organisations and 40 schools.⁹⁷

⁹⁵ Kirimi, Lilian, Nicholas Sitko, Jayne TS, Francis Karin, Milu Muyanga, Megan Sheahan, James Flock, and Gilbert Bor. "A farm gate-to-consumer value chain analysis of Kenya's maize marketing System." (2011).p. 59

⁹⁶ Kiome, Romano. "Food security in Kenya." *Nairobi: Ministry of Agriculture, Kenya* (2009).p.39

⁹⁷ Kiome, Romano. "Food security in Kenya." *Nairobi: Ministry of Agriculture, Kenya* (2009).p.34

2.9.3 Water Harvesting for Crop Production

Under this project, water pans are developed together with micro-dams for crop production to enhance food security. Over Kshs. 300 million has been disbursed and a total of 345 water pans constructed.⁹⁸ The project is fully funded by the Government of Kenya.

2.9.4 Irrigated Agriculture Projects

The government technocrats appreciate the potential of irrigation in moving the country closer to food security. For this purpose, targeted irrigation schemes for maize and rice have been put in place. These are the Bura Irrigation Scheme (covering 9750 acres and costing a total of Kshs. 579 million), Hola Irrigation Scheme (covering 4800 acres and costing Kshs. 340 million) and Pekerra Irrigation Scheme (covering 2500 acres and costing Kshs. 30 million). Other irrigation schemes include the Tana Delta Irrigation Scheme (covering 5,000 acres and costing Kshs. 450 million), Ahero Irrigation Scheme (covering 3,000 acres and costing Kshs. 110 million), West Kano Irrigation Scheme (covering 2,250 acres of rice and costing Kshs. 68 million) and, Bunyala Irrigation Scheme (Covering 1,200 acres of rice and covering Kshs. 52 million).⁹⁹

2.9.5 The National Accelerated Agricultural Input Access Project (NAAIAP)

This project has two aspects: Kilimo Plus and Kilimo Biashara. Under Kilimo Plus, poor farmers are given a packet of seeds, fertilizer and training to plant crops on at least one acre of land for household use and surplus for sale. Over 200,000 farmers have been reached with Kshs. 1.605 billion worth of inputs and training.¹⁰⁰ The inputs and training are given for free. Kilimo Biashara, on the other hand, provides the more financially able farmers with low cost

⁹⁸ Ibid. p.39

⁹⁹ Ngigi, S. "Review of irrigation development in Kenya." *The changing face of irrigation in Kenya: Opportunities for anticipating change in eastern and southern Africa* 14 (2002): 35-54.p. 43

¹⁰⁰ Sheahan, Megan, John Olwande, Lilian Kirimi, and Thomas S. Jayne. "Targeting of Subsidized Fertilizer Under Kenya's National Accelerated Agricultural Input Access Program (NAAIAP)." (2014).p.69

credit for purchasing of inputs. Over Kshs. 4 billion have been disbursed to farmers under the kilimo biashara scheme.

2.9.6 Promotion of Orphan Crops

Kenya is a country that is highly dependent on maize, with the consumption of the cereal being much higher than any other staple food. When maize performs poorly, there is therefore an alarm on the levels of available food for the nation. To change this notion, the government has sought to promote the production of orphan crops that perform with little moisture.¹⁰¹ Therefore, cow peas, pigeon, peas, green grams, sweet potatoes, cassava, millet, beans, sorghum and early maturing maize varieties have been targeted, with the government funding the project with Kshs. 350 million.

2.9.7 Rice and Potato Development

The government has developed a National Rice Development Strategy under which a new rice variety, New Rice for Africa (NERICA)¹⁰² has been developed and released to farmers, and, rice production infrastructure has been rehabilitated. Additionally, to address the declining production of Irish potatoes, the Potato Seed Master Plan and Policy have been developed.

2.9.8 National Agriculture and Livestock Extension Programme (NALEP)

This is a long term programme of the Ministry of Agriculture seeks to put in place farmer-led and demand driven extension services. Sponsored jointly by the governments of Sweden and Kenya, the programme reaches 1.2 million farmers and costs Kshs. 700 million per financial year.

¹⁰¹ Revoredo-Giha, Cesar, Hasibi Zavala-Nacul, and Luiza Toma. "Assessing an Increase of Orphan Crops in the Kenyan Diet." (2021).p.40

¹⁰² Kishine, Masahiro, Keitaro Suzuki, Sumiko Nakamura, and Ken'ichi Ohtsubo. "Grain qualities and their genetic derivation of 7 new rice for Africa (NERICA) varieties." *Journal of agricultural and food chemistry* 56, no. 12 (2008): 4605-4610.

2.9.9 The Kenya Agricultural Productivity Programme (KAPP)

This programme focuses on improving the agriculture technology supply and demand system to improve kenyans' livelihoods. Extension and research activities have been undertaken in 20 sub-counties at a cost of USD 120 million.

2.9.10 Bulk Fertiliser Procurement

This project aims at enabling smallholder farmers to access affordable fertilizer easily. Funded by the Japanese and Kenyan governments, the programme has benefitted over 350,000 farmers. The Agriculture Development Corporation (ADC), the National Cereals and Produce Board (NCPB) and Kenya Tea Development Authority (KTDA). The African Development Bank (ADB) and the Government of Kenya fund the programme.

2.9.11 Agricultural Mechanisation Services Revitalisation

This food security project seeks to improve agricultural infrastructure and land development services for farmers. The government has therefore established 23 Agricultural Mechanisation Services (AMS) stations and 10 Agriculture Technology Development Centres (ATDC) in the entire country, with mechanization equipment worth Kshs. 800 million being procured.¹⁰³

2.9.12 Agriculture Sector Support Programme (ASPS)

This programme seeks to provide a conducive policy and institutional environment for increased agricultural productivity through a Public-Private Partnership (PPP) framework. Funded by the government of Kenya and the Danish International Development Agency (DANIDA), the programme has covered areas such as Kitui, Makueni, Kwale, Taita Taveta, Kilifi, Mwingi and Malindi to the tune of Kshs. 2.607 billion.¹⁰⁴

¹⁰³ Mgendi, George, Mao Shiping, and Cheng Xiang. "A review of agricultural technology transfer in Africa: Lessons from Japan and China case projects in Tanzania and Kenya." *Sustainability* 11, no. 23 (2019): 6598.

¹⁰⁴ Kiome, Romano. "Food security in Kenya." *Nairobi: Ministry of Agriculture, Kenya* (2009). p. 79

2.9.13 Agriculture Productivity and Income Generating Programmes

These programmes include the Cotton Development Programme through the Cotton Development Authority, the Small – Scale Horticulture Development Project that improves the irrigation infrastructure in areas such as Machakos, Mbeere, Narok, Kajiado, Nakuru North, Loitokitok, Meru South and Marakwet, and the Promotion of Private Sector Development in Agriculture (PSDA) programme¹⁰⁵ that supports small and medium scale enterprises in selected value chains in agriculture. There is also a programme in Small Holder Horticulture Empowerment (SHEP) undertaken by the government of Kenya and the Japanese International Cooperation Agency, the Smallholder Horticultural Marketing Project (SHoMaP) that is funded by the International Fund for Agricultural Development (IFAD) that covers the former Western, Rift Valley, Nyanza, Eastern and Central Provinces.¹⁰⁶

2.9.14 ASAL Based Livestock and Rural Livelihoods Support Project

This is a livestock project that covers 22 sub-counties in the Arid and Semi-Arid Lands (ASAL) of Kenya and improves sustainable livelihoods of rural populations through improved livestock production, marketing and drought mitigation / management and food security. The project's components include livestock marketing improvement, animal health, sustainable livestock improvement, drought management and food security. The government has, in partnership with the African Development Bank (AfDF)) invested Kshs. 2.2 billion in the project.¹⁰⁷

Small Holder Dairy Commercialisation Programme (SDCP) this project by the Government of Kenya focuses on commercialization of dairy and dairy products through the Market Oriented Dairy Enterprises (MODE) approach with an aim of upscaling the incomes of rural households

¹⁰⁵ Ibid. p. 81

¹⁰⁶ Ibid. p.73

¹⁰⁷ Livestock, ASAL Based. "Rural Livelihoods Support Project (ALLPRO)(2007). Kajiado: Overview of the District." p.17

that are reliant on dairy farming. The project has reached 24,000 farmers in nine sub-counties in the former Rift Valley and Western Province.

2.9.15 Fish Farming Enterprise Productivity Programme

This programme generates employment, incomes and food for Kenyan youth and their families through a sustainable aquaculture model. The main areas of implementation are Western Kenya, Nyanza, Coast, Central, Eastern, and Rift Valley. The young people contribute labour to the project and they sell fish and fish fingerlings.

It is noted that despite all the discussed food security initiatives, the government of Kenya still grapples with the ever challenging question of food security. Almost all of the discussed programmes have been run by civilians who many times have run down the programmes with little to show after the end of the programmes. The use of the military then becomes a viable option to guarantee access for the projects where it is appropriate.

2.10 A History of the Military and Food Security in Egypt

In 1977, when President Sadat cut subsidies, there were bread riots and the military was used to distribute food to the population.¹⁰⁸ In 1979, the National Service Project Organisation (NSPO) was created as a subsidiary of the Ministry of Defense to roll out projects in the exclusively civilian sectors of the Egyptian economy.¹⁰⁹ The Food Security Division of the NSPO set a 100% sufficiency target for the military in foodstuffs, just as the country was historically established for self-sufficiency in weapons in the Arab world. The Egyptian authorities believed that military food self-sufficiency would spur national food security. In the 1980s therefore, NSPO began developing dairy farms, milk processors, cattle feed lots, fish and poultry farms. The military managed to produce 18% of the national food output through

¹⁰⁸ Bienen, Henry S., and Mark Gersovitz. "Consumer subsidy cuts, violence, and political stability." *Comparative Politics* 19, no. 1 (1986): 25-44.p. 39

¹⁰⁹ Joya, Angela. "The military and the state in Egypt: class formation in the post-Arab uprisings." *British Journal of Middle Eastern Studies* 47, no. 5 (2020): 681-701.p. 689

this initiative and 60% of the army's food requirements. Surpluses were sold commercially with the profits returning to the army's accounts. This approach cushioned prices in the international wheat markets; something that had immediate positive repercussions to Egypt which is heavily reliant on wheat imports.¹¹⁰

In 2008, there was a severe bread shortage that the then president, Mubarak, solved by calling on military bakeries to upscale their production. In November 2016, the military supplied the population with millions of food lots when prices spiked by 40% following the devaluation of the Egyptian Pound by 130% to the US Dollar.¹¹¹ The army has also expanded its supermarkets to cover the entire country, particularly targeting the most vulnerable who constitute about 28% of the nation's population.¹¹²

The military's political influence pervades the food supply sector whereby a military officer was appointed Minister for Supply, responsible for wheat imports in September 2016. This was in the midst of corruption claims and wheat disappearance leveled against his predecessor and this was thus a means to curtail corruption. In addition, the smart card food subsidy system was also been transferred to the Ministry of Military Production and so, effectively, the military took charge of the rationing system that benefits almost 90% of the country's citizens.¹¹³

2.11 The Military and Food Security in Egypt

For the most part, Egypt is a desert country with only 30% of the country being arable, mostly along the entire course of the Nile River, including the Nile Delta. With over 100 million inhabitants, Egypt is easily the most populous Arab country in the world. This means that Egyptian authorities have to grapple with the increasing needs of the Egyptian population.

¹¹⁰ Marshall, Shana. *The Egyptian armed forces and the remaking of an economic empire*. Washington, DC: Carnegie Endowment for International Peace, 2015.p. 269

¹¹¹ Ayeub, Habib, and Ray Bush. *Food Insecurity and Revolution in the Middle East and North Africa: Agrarian Questions in Egypt and Tunisia*. Anthem Press, 2019.p. 85

¹¹² Ibid

¹¹³ Ibid p. 91

In Egypt, there is a close relationship between political stability, the economic climate and the state of food security. The country is reliant upon staple foods that are subsidized by the state. The World Food Programme estimated that 13.7 million Egyptians (17% of the population) were food insecure in 2011, up from 14% in 2009.¹¹⁴ Spreading food insecurity drove millions of Egyptians onto the streets to hound the then President, Morsi out of office.

For many decades, the military in Egypt has been a major player in food production, although for security and confidentiality concerns, its contribution cannot be quantified in monetary terms. The military has also been producing low-cost consumer goods and it is believed to be economically self-sustaining by producing food and clothes for its consumption and surplus for sale.

President Sisi's rule has seen the military win massive infrastructure contracts which have seen military owned manufacturing companies expand into new markets by producing much cheaper goods such as fertilizer, cement, domestic appliances, solar panels and electronic and medical equipment.

The country's Ministry of Agriculture and Land Reclamation in 2019 commenced on a project to boost agricultural production whereby in August of the same year, 1300 greenhouses occupying 10,000 feddans (4200ha) were established in the North Coast. The military played a role in this, manufacturing the required equipment and machinery for up scaled agricultural production.¹¹⁵

The project sought to maximize land use and water rationalization. The project's productivity was to equal that of about 1 million feddans (42,000ha) and supplied 20m Egyptians with food. All year round production and 70% savings in water use together with a signed agreement

¹¹⁴ Power, Lauren. "Death on the Nile: Egypt's Burgeoning Food and Water Security Crisis." *Future Directions International, Australia* (2014).p. 231

¹¹⁵ Waterbury, John. *Exposed to innumerable delusions: Public enterprise and state power in Egypt, India, Mexico, and Turkey*. Cambridge University Press, 1993.p. 47

between the Ministry of Agriculture and Land Reclamation and the military on mechanization devices supply assured the project's success.

2.12 Coordination Mechanism for Egyptian Military's participation in Food Security

The participation of the armed forces is carried out by the Logistics Authority and the Engineering Authority of the Armed Forces, each of which is divided into several different departments and branches, and this is based on supreme sovereign orders by the presidency. Coordination with the government is carried out at the highest level with the Prime Minister and the relevant minister to implement the feasibility study for the projects expected to be implemented, and sometimes in the presence of the President of the republic in person.

When the subject is related to a national project or a national goal that is expected to be achieved, there is no room for an unproductive individual. Competent civilians with knowledge and experience are used in all branches related to planning and implementation to achieve the national goal, with the presence of a commanding officer for each branch who controls, monitors and writes reports on the progress and quality of work and workers.

2.12 Role of the Military in Food Security Initiatives in Kenya

The military in Kenya has not been deeply involved in food security initiatives as much as the Egyptian military, and neither has it engaged for long in the initiative. However, there is established the Kenya Ordnance Factories Corporation (KOFC) that is a State Corporation under the Ministry of Defense and is the basis of national security industries for the nation. The KOFC was established through Legal Notice No. 125 of 23 July 1997. The KOFC was established to fabricate hardware, machinery and equipment, and engage in other activities that can contribute to the military and country's self-sustainability. Due to limited funding, the National Security Organs (NSOs) such as the KOFC are yet to diversify and exploit their industrial potential. For this reason, the KOFC engages in ration production i.e. dehydrated

vegetables at the Gilgil Factory, water bottling at the Thika Factory, confectionery production (Eldoret, Gilgil and Moi Air Base Bakeries, Maize Milling (Eldoret) and Meat Processing (Athi River Factory)).¹¹⁶

The KDF involvement with Kenya Meat Commission (KMC) in Athi River provides a detailed example of the Kenyan military's involvement in food security in Kenya. The next section discusses the Kenya Meat Commission at Athi River that is run by the KDF. Some of the key strategic objectives of the KDF at KMC include enhancing national food security and health, improving the national agricultural produce market as a step towards stabilizing food prices, and to assure farmers of market and in the process, empower them.¹¹⁷

The dehydrated products by the KDF FPF include kales, potatoes, cabbages, carrots, spinach, mixed vegetables and onions. The FPF has a nucleus farm from which it sources raw materials together with produce from farmers in Narok, Nyeri, Nyandarua, Nakuru, and Elgeyo Marakwet counties.¹¹⁸

From the foregoing example of the KMC at Athi River, the military plays a major role in food security initiatives within the country, not mentioning the food factories in Gilgil, Thika, Eldoret and Moi Air Base.

Conclusion

This chapter has examined in details the role of the military in food security initiatives. An overview of the food security situation in Egypt has been discussed, with the threats to food security in the country, agricultural policies, and challenges to achieving food security in Egypt have been discussed in detail. Similarly, in Kenya, an overview of food security in the country

¹¹⁶ Oduor, Erick John. "The Military and Kenya's Big Four Agenda: The Case Of Infrastructure." PhD diss., United States International University-Africa, 2019.

¹¹⁷ Ibid

¹¹⁸ Ibid

has been discussed together with the causes of food insecurity and the challenges to the achievement of food security in the country. Some past government initiatives in achieving food security have also been covered. The chapter ends with the role of the military in food security in both countries. From the discussion, both Egypt and Kenya have real challenges in food security, and the military is one option in accomplishing the journey towards food security.

CHAPTER THREE

ENABLING FACTORS FOR MILITARY PARTICIPATION IN FOOD SECURITY

3.1 Introduction

With a drastic reduction in war or even the threat of war, particularly after the end of the Cold War, there are two schools of thought about the role of the military in civilian operations, food security included. The old thinking is that the military should only be confined to the barracks where it should be solely concerned with strategizing for war, beating back the enemies of the country and defending territorial integrity. The other school of thought envisions provision of Civil Military Aid to the community as well as living and interacting with civilians for enhanced standards of living and wellbeing, and stability.

The primary mandate of any military is National Defense, however it is evident that over time that globalization has continuously introduced newer dimensions of threats to the nations which are mainly regarded as Human Centric. The modern war and conflict, mainly fueled by conflicts in values and resources, employs concepts, methods and security technology to produce a hybrid warfare environment which encompasses political warfare with a blend of conventional warfare. Threats to security therefore calls for a paradigm change in the way they are handled. Therefore, many militaries are currently continuously being engaged in activities that are widely being considered as a deviation from the traditional defense roles.¹¹⁹

According to the Chief of the Kenya Defence Forces, General Robert Kibochi, the military is mandated with assisting and cooperating with authorities depending on their areas of mutual

¹¹⁹ Joya, Angela. The military and the State in Egypt: *Consumer subsidies cuts, violence and political stability.*'' Comparative policies 19 no 1 1986 p.52

competency.¹²⁰ He further adds that it is incumbent upon the military to use its capacity to assist civilians because development and security are complexly related.

This chapter therefore looks at the factors that contribute to a facilitative environment for the flourishing of the involvement of the military in civilian programmes in Kenya, the key one being food security programmes.

3.2 Establishment of the National Defense University - Kenya

With a vision to reshaping Education in National Defense and Security, The National Defence University - Kenya (NDU-K) which was recently awarded a Charter under section 24 of the Universities Act, 2012 that partly authorizes an entity seeking special status of a degree awarding institution if its uniqueness is of strategic and national importance, KDFs NDU-K was gazette on 4th June 2021 having met the thresh hold set out in law.¹²¹ It is the first University of its kind in Kenya. The milestones leading to its inception was borne in 1992 by a former Chief of Defense Forces, General Daudi Tonje who rooted for the establishment of the National Defense College (NDC) in the midst of the changing role of the military to add development to security to bring together military and civilian policymakers into a cohesive blend, that would further result in development for the country. The NDC over time, emerged as a regional centre for training high-level military and civilian officers with a focus on achieving synergy and harmonious decision-making on issues of national concern. The college produced leading military and civilian policymakers for the country and the continent. The KDF in 2020 adopted a raft of transformative initiatives to realign defence capabilities with national security and development priorities against the back drop of a fast evolving regional

¹²⁰ Onditi, Francis, Gilad Ben-Nun, Edmond M. Were, Israel Nyaburi Nyadera, and General Robert Kariuki Kibochi. "Systems Thinking Approach for Africa."p. 36

¹²¹ Lieutenant General Mwangi, Jonah. Vice Chancellor National Defense University-Kenya: Reshaping Education in National Defense and Security. A New Frontier. Kenya Defense Forces, Majeshi Yetu, Vol 21, 2021. p. 13

and global security environment as well as incorporating the lessons learnt in mandate implementation.¹²² The NDC hence is now a college under the NDU-K which is modelled along the inspirational philosophy that *'the soldier is the arrowhead in National defense and he must be perpetually sharpened through enhanced curricula in order to be mission ready'*¹²³

3.3 Failure of Civilian led Institutions to deliver on their Mandate

Some institutions have been notorious for being entangled in wrangles, may have been corrupt, or may have elected at their helms, leaders with inadequate capacity to execute their mandate. Two instances of this scenario come into play: the takeover of some of the functions of the County Government of Nairobi by the Nairobi Metropolitan Services, and the takeover of the Kenya Meat Commission by the Kenya Defense Forces.

After the elections of 2017, the County Government of Nairobi had a new governor, Mike Mbuvi Sonko, who swept away previous technocrat, Evans Kidero. Upon his assumption of office, he promised "to guarantee efficient and timely services for all residents." However, when he stepped into office, his rough manner and unorthodox management led to multiple resignations, constant fallouts and sackings of city officers. He is cited as having been ignorant of how to manage the formal governance structures of the county.¹²⁴ The new governor however had little technical capacity to run the county, and was additionally soon caught up in a web of graft.

In December 2019, an arrest warrant was issued against him for a number of corruption charges during his tenure as Governor, and he was arrested in Voi as he tried to flee the country. He was released on bond on condition that he was barred from accessing the Governor's Office until the completion of the case. The senate of the country impeached him on 17 December of

¹²² Ibid

¹²³ Ibid

¹²⁴ Rhee, Inbok. "Electoral Security and Legislator Attention: Evidence from the Kenyan National Assembly Debates, 2008-2017." *KDI School of Pub Policy & Management Paper* 19-18 (2019). p. 188

the same year, and on 21 December, the County Assembly Speaker was sworn in as acting governor for 60 days due to Sonko's failure to appoint a Deputy Governor who would have taken over from him. At the end of his tenure, he had to sign away some of the county's functions to the national government through the Nairobi Metropolitan Services (NMS) which was headed by a military general, Hussein Badi.

Within 100 days, the General steered the NMS through efficiency to the following milestones: dismantling of cartels in the city's water sector and the elevation of 35 tanks, laying of 20,903 metres of piping and the daily distribution of 200,000 litres of water to slum residents using water bowsers; establishment of pedestrian walkways, pedestrian and cycling lanes on Kenyatta Avenue, Muindi Mbingu and Wabera streets, and establishment of bus termini. In terms of waste management, within 100 days, the NMS collected 175 garbage truckloads daily and cleared 70% of waste backlog. This shows how the involvement of the military can bring efficiency in the running of a public entity such as a county government.

The second case is that of the Kenya Meat Commission (KMC), whereby since its inception in 1950, the commission seldom recorded any profits. Mandated to purchase cattle and small stock, to acquire, establish and operate abattoirs, and, to process meat and other meat foods for export and or consumption within Kenya,¹²⁵ the KMC found itself struggling to execute its mandate.

At the peak of its operations, KMC supplied meat to all major towns in Kenya: to government institutions, private institutions, supermarkets, KMC franchised butcheries and individual customers. In addition, it had export markets in the Middle East (U.A.E, Kuwait, Qatar and Saudi Arabia); East Africa (Tanzania, Rwanda and Uganda); Central Africa (Democratic Republic of Congo); North Africa (Sudan, South Sudan and Egypt) and Southern Africa (Angola).¹²⁶

¹²⁵ Kenya Meat Commission Business Plan (2021 – 2025)

¹²⁶ Ibid

The KMC faced stiff competition after the liberalization of the meat market in 1975 and continued to operate at a loss up to 1987 when it closed, reopened in 1989 and closed again in 1992. After intermittent closures, the commission was transferred to the Ministry of Defense through a presidential directive in 2020 with the sole objective of realizing its turnaround. The appointment of a military Managing Commissioner together with the seconding of KDF officers to the management team lead to the almost immediate turnaround of the financial fortunes of the KMC. The three years 2018, 2019 and 2020 witnessed declining losses of Ksh. 221 million, Ksh. 117.1 million and Ksh. 100 million respectively. Upon taking over of operations on 1 April 2021 by the KDF, in the 2020/21 financial year, sales revenue rose to Ksh. 374.2 million (Ksh. 110m for the three calendar quarters of July 2020 to March 2021, and Ksh. 263.3 million for the quarter of April to June 2021).¹²⁷ Sales revenue has since continued to rise. The first quarter of the 2021/22 financial year (July to September 2021) recorded sales revenues of Ksh. 496.1 million. More commendably, for the first time ever, the KMC has recorded a net operating profit of Ksh. 33.5 million for quarter one of the 2021/2022 financial year. Having achieved the break-even point within six months of new, KDF dominated management, the future of the KMC is bright, and higher sales revenues and corresponding profits can be expected going forward.

3.4 Predisposing Characteristics and Resources of the Military to Food Security

The military in many countries is resourced with many professionals in different areas and it is free to work with civilian professionals. In times of peace when there is no threat to national security, the employment of the military in initiatives that are central to food security of the country such as food security is a welcome idea. This keeps military personnel occupied and integrates them with civilians in working towards the noble goal of food security.¹²⁸ Lastly,

¹²⁷ Ibid.

¹²⁸ Boyer, Jefferson. "Food security, food sovereignty, and local challenges for transnational agrarian movements: the Honduras case." *The journal of peasant studies* 37, no. 2 (2010): 319-351.p.322.

since the military forces are disciplined forces, planned activities are expected to be duly undertaken without mischief, as any deviation is taken for a serious breach of discipline, for which dire consequences await. Unity of command and direction are key hallmarks of the military, which are advantageously transferred to civilian food security initiatives.

In addition, the military accumulates many resources such as road construction or farm layout equipment, an orderly chain of command, and communication infrastructure that can quickly be put to use efficiently to ensure the successful achievement of any task, food security included. These characteristics therefore make the military a very attractive option for civilian leaders to turn to as they grapple with the food security issues of their countries. It therefore becomes easy to engage the military in these endeavors, particularly where efforts to engage civilians have been frustrated by ineptitude, corruption and raw greed.

The main drawback to civil participation in food security initiatives is indiscipline. Civilians have been known in some instances to blatantly flout the rules and engage in inappropriate practices that lead to grand corruption and subsequent collapse of food security initiatives.¹²⁹ Countries that have tried to engage the disciplined forces such as the military have hence been able to surmount this situation and reverse the misfortunes occasioned by civilian management.

This section captures the contribution of the military to food security. Four cases are discussed to discuss this topic, i.e. the US in Afghanistan, Nigeria, Egypt and Kenya.

3.5 The US Army in Afghanistan

One example of the military and civilian cooperation and intervention in agriculture is seen in the activities of the US army in Afghanistan from the year 2008. This came on the backdrop of the win for the US in the US-Afghanistan War, where it was acknowledged by Robert Gates,

¹²⁹ Goetz, Anne Marie, and Rob Jenkins. "Reinventing accountability." *Making Democracy Work for Human Development. Primera Edición. Gran Bretaña: Palgrave Macmillan* (2005).

former US Secretary for Defense that winning the war is not sufficient. He emphasized that wins have to be registered in all fronts as is captured in his words viz:

“One of the most important lessons of the wars in Iraq and Afghanistan is that military success is not sufficient to win: economic development, institution-building and the rule of law, promoting internal reconciliation, good governance, providing basic services to the people, training and equipping indigenous military and police forces, strategic communications, and more—these, along with security, are essential ingredients for long-term success.”¹³⁰

From the preceding quote by Robert, it is not just enough to subdue the enemy along combat lines, but it is also most critical to ensure the restoration of the components of fully functional systems in all areas, including agriculture, by the occupying army.

To this end, the US and Afghanistan forces together with the civilians of the nation created an operational framework which they named Counterinsurgency (COIN) that sought to surmount insurgency and address its core grievances at the same time.

In the area of Agriculture, the US and Afghanistan armies created Agricultural Development Teams (ADTs). These highly skilled teams comprised 12 soldiers who are skilled in geoscience, agronomy, veterinary science, engineering, agricultural marketing, and pest management. They trained as a team before they were dispatched to the field and work with regional and local government officials and farmers in areas of agriculture-related education, training, and sustainable projects, which are U.S funded and locally managed as business entities. As at early 2014, 49 such teams had reached 9 states and contributed to over 680 agricultural projects, generating over \$42million in economic impacts to the economy.

3.6 Role of the Indonesian Military in National Development

The country of Indonesia has a devolved system of government with three tiers of authority: national or central, regional and local. Many of the powers of the national government have

¹³⁰ Patrick, Stewart, and Kaysie Brown. "The Pentagon and global development: making sense of the DoD's expanding role." *Available at SSRN 1101526* (2007).p.78

been devolved to the lower levels of government with these levels exercising a lot of independence in policy formulation and resource allocation. The national or central government is therefore crippled in terms of implementation and coordination of policies, among them food security policies. The process of decentralization gave rise to as many as 12,000 hastily formulated policies that are in opposition to the national government's policies.

In addition to contrasting policies, there is rampant corruption at the lower levels with 318 out of 524 local government heads being arraigned by the Corruption Eradication Commission.¹³¹ Some of the accusations they faced include abuse of office, misuse of natural resources, and general corruption.

The country's leadership then decided to integrate the military to stem the slide into anarchy. Whereas civilian authorities are slow and perceived to be corrupt, the military exhibits a high sense of discipline and it has an effective, centralized structure that can be rapidly employed for effective results in the short term. Thus, a military structure that is parallel to the civilian structure but which is much leaner was created, as is seen in table 1.¹³²

Table 1: Comparison of the Military Area Command and Civilian Executive Structure of Indonesia

Military command structure	Civilian executive structure
15 military commands	34 provincial governments
44 military 'resort' commands	416 regencies (<i>Kabupaten</i>) and 98 cities (<i>Kota</i>)
Around 275 military district commands	
Around 3,000 military commands at the ward level	Around 6,500 sub-districts (<i>lekamatan</i>)
Over 50,000 village noncommissioned officers (<i>babinsa</i>)	Around 76,600 villages (<i>desa/kelurachari</i>)

Source: Sebastian, Leonard et. al (2018)

¹³¹ Beh, LooSee. "Public ethics and corruption in Malaysia." In *Public administration in Southeast Asia*, pp. 171-191. Routledge, 2017.

¹³² Sebastian, Leonard C., Emirza Adi Syailendra, and Keoni Indrabayu Marzuki. "Civil-military relations in Indonesia after the reform period." *asia policy* 13, no. 3 (2018): 49-78.

From the preceding table, the army is well represented up to village level, and it can effectively employ its superior information gathering and mobilization skills to implement social policies, among them, food security policies, very effectively. One key success of the cooperation between the army and civilians is in the agriculture sector, where it was noted by the Agriculture Minister that the army helped the ministry achieve food security in several agricultural commodities.

3.7 The Nigerian Military Role in Food Security

In Nigeria, there have been conflicts for decades between farmers and pastoralists. A steady increase in population has created pressure on the land to be utilized in food production through farming, and not pastoralism. Farms were established on livestock migration routes and this inevitably led to conflicts between the farmers and the pastoralists. When livestock farmers drove their cattle through newly created farms, they trampled on the crops grown therein, and the farmers revenged by killing, injuring or hijacking the livestock. Minor altercations led to widespread conflict that developed into deadly clashes that led to open war.¹³³ Such conflicts have been costly to the nation in terms of casualties and revenue loss. For instance, in 2016, deaths arising from conflicts between pastoralists and farmers amounted to 44% of all deaths in the country. In terms of revenue loss, it is estimated that the federal government in 2016 lost close to \$13.7billion to conflicts between farmers and pastoralists in just four states, Kaduna, Plateau, Benue and Nassarawa), amounting to half of the projected revenue.

For a long time, Nigeria's food production has been lower than the global standards: food production in the country is 30% less than the per capita requirements. Animal protein supply

¹³³ Ajala, Olayinka. "New drivers of conflict in Nigeria: an analysis of the clashes between farmers and pastoralists." *Third World Quarterly* 41, no. 12 (2020): 2048-2066.p. 2057

is only a third of the global standards, leading to unbalanced, high-carbohydrate diets where the country is 32% higher than the global standards.¹³⁴

To solve the foregoing problem, the government of Nigeria resolved, in July 2018, to create the Nigerian Army Farms and Ranches Limited (NAFARL). This was part of the efforts of the Army Chief of Staff, Tukur Buratai's efforts to reorganize the army to have a structure to restore order, rebuild key infrastructure and maintain security within conflict prone areas while participating in food production for military use and for stabilization of the food security situation in the country.

One of the mandates of the NAFARL was to resolve conflicts between the pastoralists and farmers. This was done by introducing sedentary livestock production through ranches. Livestock ranches were therefore established throughout the country, cutting out the need for the pastoralists to keep moving around for pasture and water. Cattle were then enclosed in the ranches, limiting damage to farms, with veterinary services being offered within the ranches obligatorily. The meat, meat products and milk are processed on the ranches and sold to the army or local population.

Army lands are similarly used for agriculture, depending on the prevalent climate and the crops that are suited to those areas. The participation of the army in food and animal production is roughly on a 50:50 basis. Other animals such as fish and poultry have been introduced; while greenhouses and plantations have been introduced in the crop farming sector. The initiative has employed many civilians and helped end the deadly conflicts were reducing food insecurity in the nation.

¹³⁴ Babatunde, R. O., O. A. Omotesho, and O. S. Sholotan. "Socio-economic characteristics and food security status of farming households in Kwara State, North-Central Nigeria." *Pakistan Journal of Nutrition* 6, no. 1 (2007): 49-58.p. 53

Thousands of livestock including cattle, sheep and goats are kept in the ranches. The project started with the Giri Ranch, Abuja in January 2018, and Kontagora Ranch in April 2019. The projects were maintained by civilians.¹³⁵ The project intends also to establish integrated units where, in one site, there is both animal production and crop farming. The project is keen to utilize emerging and modern technologies – the Ministry of Agriculture has supported the military with feed production and mixing machines, livestock breeding control and milk and meat processing facilities. This shows that soldiers cannot only be engaged in war times but also in establishing and sustaining permanent peace.¹³⁶

3.8 The Egyptian Military Role in Food Security

There is a close correlation in Egypt between the economic climate, political stability, and the state of food security, because of the population's considerable reliance on state subsidized staple foods.¹³⁷ Previously, Egypt has had a history of bread riots and subsidized bread has been an important part of successive Egyptian governments' strategies for maintaining social stability, since violent protests erupted over reductions in food subsidies in 1977.

In recent years, poor access to supplies of staple foods and increasing prices led to riots in 2008 and were a contributing cause of the political revolution in 2011. A report by the World Food Program shows that an estimated 13.7 million Egyptians (17 per cent of the population) were suffering from food insecurity in 2011, an increase of 3 per cent since 2009. The data, which also shows 15 per cent of the population moving into poverty over the same period, probably understates the severity of the situation. The successive years saw a serious deterioration in the Egyptian economy, rising unemployment and further increases in poverty. These factors make

¹³⁵ Gavrilova, Nina G. "Soldiers as farmers: army agriculture and food security in contemporary Nigeria." In *BIO Web of Conferences*, vol. 27. EDP Sciences, 2020.p. 33

¹³⁶ Ibid.

¹³⁷ Power, Lauren. "Food Crises and Political Turmoil: The Impact of Egypt's Military Intervention on National Food Security." *Future Directions International, Strategic Analysis Paper* (2013).

it likely that a far larger portion of the Egyptian population is currently experiencing food insecurity.

Food insecurity is one of the driving factors that create a disaffected population ripe for rebellion, as occurred when millions of Egyptians took to the streets on the 30 June to end President Morsi's rule. While the desire for an economic situation more conducive to food security was a primary motivator for the protestors, the ouster of Morsi will have little positive impact on either the short- or long-term food security of the country.¹³⁸

The Government of Egypt established the NCPC in January 2017 as part of the companies of the national service project organization NSPO. The NCPC produce high quality fruits and vegetables using the highest production technologies through greenhouses. 40,000 hectares of modern greenhouses have been established in various parts of the country.¹³⁹ The fruit and vegetables that are produced are of the highest quality standards with an eye for local, regional and international markets. Some of the markets include the Arabic world, Europe and Asia. Countries of export also include America, Canada and some African countries. Out of this initiative, which is run by the Egyptian military, has offered 500,000 employment opportunities for workers, administrators and agriculture engineers. In the Mohamed Naguib Sector project that is situated in El Hamam City has a total acreage of 10,000 and has 1302 greenhouses, while El Amal village has 529 greenhouses on 380 acres. The 10th of Ramadan Sector project has 900 greenhouses on 4200 acres, the Abu Sultan Sector has 12,500 acres that have 2353 greenhouses while the El Lahon Sector project Fayoum Governorate has 2,000 on 16,000 acres. In total therefore, the total acreage under greenhouses all over the country is 40,000 acres.

¹³⁸ Food Crises and Political Turmoil: The Impact of Egypt's Military Intervention on National Food Security by Lauren Power 11 JULY 2013 FDI Team, Page 2

¹³⁹ Sakr, D., and A. Abo Sena. "Cleaner production status in the Middle East and North Africa region with special focus on Egypt." *Journal of cleaner production* 141 (2017): 1074-1086.p.1077

3.9 The Kenyan Military

The Big Four Agenda is Kenya's President, Uhuru Kenyatta's development agenda from 2018 to 2022 focused on raising Kenyans' living standards and promoting a strong, inclusive, economic growth in line with the Kenyan Vision 2030. It has been established that the military possesses considerable capability in different fields that can be of social and economic importance and may therefore be called upon to assist in the response to disaster. Following this study, it is recommended that the government should engage the military more by increasing the mandate of KDF to encompass infrastructure development. This research paper studies the role of the Kenya Defence Forces in support of achievement of the food security, which is a pillar of the Big Four Agenda, with a primary focus on enhanced involvement in food production and processing. In this study, an analysis of opportunities for Kenya Military to participate in economic development, assessment of the role that Kenya Military has played in enhancing food production and processing and opportunities that are there in Kenya that would largely enable the realization of a food secure country.

3.9.1 The Kenya Meat Commission

The Kenya Meat Commission was established in 1950 to purchase and process livestock from farmers into quality meat and meat products for the market. The Commission was also strategically placed, due to the scale of its operations, to ensure that local beef markets are not flooded with meat imports while simultaneously contributing to the country's foreign exchange earnings by exporting processed beef. With 14.3 million beef cattle in the country whose worth is about Kshs. 116 billion in 2014, Kenya Meat Commission was looking to tap into this market which is mainly in the arid and semi-arid areas.¹⁴⁰

¹⁴⁰ Nyamu, George Murithi, and James Kathuri Ndwiga. "The Challenges of the Meat Industry That Impact on the Operations of Kenya Meat Commission."p.19

However, the Commission has had stuttered operations over the years and it has also registered losses over the years, until its takeover by the military and revamping by the state.¹⁴¹ The takeover of the parastatal by the military has seen specialized military officers deployed to the facility to inject much needed professionalism into the operations of the entity. The Kenya Meat Commission also processes non-meat items such as fruits and vegetables that, apart from being processed, are dried and packed. The entity is now responsible for providing quality meat and horticultural produce to the military, selected schools, selected private enterprises and donations to disaster hit areas in Kenya and abroad. It indeed constitutes a major success story of the Kenya Government in food security issues.

Conclusion

This chapter has discussed the main factors that make it possible for the military to participate in food security initiatives, which are generally considered as purely civilian functions. While on one hand civilians may have failed to effectively handle food security initiatives, the army has proved to be effective in food security initiatives as has been illustrated by the US army in Afghanistan, the Indonesian, Nigerian, Egyptian and Kenyan armies. The Kenya Meat Commission is a flagship initiative that shows that the military is indeed more than capable ensuring that a nation achieves food security.

¹⁴¹ Ibid p. 21

CHAPTER FOUR

CONSTRAINTS IN THE MILITARY'S PARTICIPATION IN FOOD SECURITY

4.1 Introduction

This chapter examines the various constraints or challenges to effective military participation in achieving food security in Kenya and Egypt. It is noted that these constraints are cross-cutting, and are not tied strictly to the food security sector alone. The challenges that are captured herein therefore touch on various issues including the constitutionality of military involvement, perceptions of 'militarisation' and 'militarism' of the country, and citizens' fear of takeover of civilian functions by the military. The chapter also gives an overview of constraints facing military participation in Egypt.

4.2 General Constraints to Civic-Military Cooperation in Africa

While in previous chapters it is discussed that the public and private sectors struggle and often are not able to provide required resources and services, on the other hand, resources that are harnessed by the military are rarely used due to a constellation of reasons. Academicians and civil society organization actors have vehemently protested against the involvement of the military in domestic initiatives¹⁴² as they reason that this action causes the civilians, state and possibly the continent to a number of dangers.

First, they reason that the military is more suited to addressing traditional security challenges to state self-rule. Any other role assigned to the military, they argue, would distract the military from focusing on its main goal – protection of the state.¹⁴³ The other aspect that is feared by critics of military involvement in development is the militarization of the state owing to the

¹⁴² Cohen, Herman. *Intervening in Africa: superpower peacemaking in a troubled continent*. Springer, 2000.p. 86

¹⁴³ Burk, James. "Theories of democratic civil-military relations." *Armed Forces & Society* 29, no. 1 (2002): 7-29.p.22

relative strength of the military when compared to the public and private sectors. This can make the military to overshadow the other sectors.

There is further criticism that an overreliance syndrome may be caused if African leaders rely on the military all the time to solve the country's problems. The rise of the military, they further argue, will be accompanied by the emasculation of the public and private sectors.¹⁴⁴ They therefore argue that the military should keep off such venture for balanced and sustained growth of the public and private sectors in the countries.

Lastly, it is feared that the incorporation of the military in civilian matters may lead to its entry into politics. It is feared that the military may manipulate the dependence of the state to it to serve its own interests. Such a situation, it is ultimately feared, will lead to loss of control of the military by the state leadership, and if possible, an overthrow of the elected government. This is supported by the fact that in less than five decades, there have been 80 successful coups and 250 coup attempts in Africa.¹⁴⁵

4.2 The Constitutionality of Military Involvement in Civilian Functions

Critics of involvement of involvement of the military in civilian functions cite the constitution of Kenya (2010) which envisions it as a force for defending and protecting the territorial integrity and sovereignty of the country. Its secondary roles should include offering help in emergencies or disasters and restore peace anywhere in the country under supervision of the National Assembly.

It is observed that the Kenyan military is highly respected for its effective response during emergencies, its faithfulness to the Republic and its global peacekeeping feats. It has also been distinctly above the political tussles arising from operating separately from the executive. The

¹⁴⁴ Kidwell, Deborah C. *Public war, private fight? The United States and private military companies*. Army Command And General Staff Coll Fort Leavenworth Ks Combat Studies Inst, 2005.p. 34

¹⁴⁵ Bell, Curtis. "Coup d'état and democracy." *Comparative Political Studies* 49, no. 9 (2016): 1167-1200.p. 1179

military, being a disciplined force, has a clear chain of command and a characteristic of orders being followed to the letter, unlike civilian institutions. Deviant behaviour on the part of military officers invariably amounts to disciplinary action. On the other hand, examples abound of civilian officers in the food security sector who commit massive and manage to circumvent the justice system to enjoy their loot without punishment.

However, the involvement of the military in civilian roles including food security initiatives therefore becomes an area of concern for constitutionalists.¹⁴⁶ It is argued that sometimes the constitutional procedures that restrict and define the functions of the military are not invoked.

The County of Nairobi, for instance, is headed by Major General Abdalla Badi who was appointed, not elected. Therefore, questions arise over the legitimacy of his position. In addition, other military officers have been brought on board in the administrative ranks of the county.

Critics therefore fear that when the military is involved in executive functions, this involvement may have an effect on their allegiance to the people and the constitution. They may be faced with a dilemma of choosing between the whims of the regime that brought them into civilian functions and sticking to their constitutional mandate.

4.2 Conflict with the National Police Service and other Agencies

The National Police Service (NPS) is tasked with maintaining law and order within the Republic of Kenya. However, with the increased sophistication of criminals and the terrorist threat that hangs over the country mainly by Al Qaeda affiliate Al Shabaab, the government opted to involve the judiciary in the surveillance and neutralization of security threats within the city of Nairobi, where most terror attacks have been executed.

¹⁴⁶ Ouédraogo, Emile. *Advancing military professionalism in Africa*. NATIONAL DEFENSE UNIV FORT MCNAIR DC AFRICA CENTER FOR STRATEGIC STUDIES, 2014.p. 69

Subsequent to this, the Nairobi Metropolitan Command (NMC) came into force in 2013 as a formation of the Kenya Defense Forces to fight against terrorism threats, small arms proliferation, drug trafficking, crime and related activities that are synonymous with large towns such as Nairobi.

Critics of this move have asserted that having the military to police the streets may bring them into conflict with the civilian NPS. There were fears expressed that if the military were allowed to patrol the streets then there would be a lot of apprehension among the citizenry. With no clarity about how the unit was to function, it was feared that the unit may operate that the Black Mamba, which was an elite intelligence squad of the Uganda People's Defense Force that was infamously known for operating outside the law and ignoring other law enforcing agencies.¹⁴⁷ Further, in a country where extrajudicial killings occur, it was feared that these would escalate with the establishment of the NMC. It is also feared that the NMC cannot be subjected to the Independent Policing Oversight Authority for purposes of keeping it from violating the rights of the citizens.

The military was engaged in 2008 internally to quell the post-election violence and clear the roads after the contested presidential election. In addition, it was employed in Tana River, Kapedo, Mt. Elgon, Mpeketoni and Westgate to neutralize insecurity threats. This has been referred to by experts as the militarization of security.

Fears of a similar but slightly different nature are expressed every time the military is involved in otherwise civilian matters such as food security initiatives at the KMC. The fears are based on the militarization of civilian activities that may end up having the military squeeze out civilians from their duties.

¹⁴⁷ Kagoro, Jude. "Competitive authoritarianism in Uganda: The not so hidden hand of the military." *Zeitschrift für vergleichende Politikwissenschaft* 10, no. 1 (2016): 155-172.p.167

4.3 The Militarisation, Militarism and Praetorianism Dilemma

Militarisation is the process through which military influence and priorities are extended to civilian life through internal dimensions such as military predominance in politics, expansion of military forces and structures, having a military force preference to pursue coercive solutions to political problems and cultural support organized state violence. It involves growth of military resources.

Militarism is a word that emphasizes the belief that a country should maintain a strong military capability and be prepared to use it aggressively to defend or promote national interests. It involves a government devoting funds to military spending to build up its capacity. Militarism is an ideology that reflects the level militarization of a state and which is associated with the glorification of the military, armed forces and weapons, military power, symbolic and use of force. Examples in society range from military involvement in schools, granting privileges to military employees etc. A good example of militarized countries in the world is Israel and Russia.

Praetorianism on the other hand is the excessive and abusive political influence of a military armed force in a country. It is the control of society by force. It is a corrupt military despotism.

In Africa, specifically Egypt, almost all departments of government are headed by the military; 17 out of 27 departments. This has made the military entrench itself deeply into the affairs of government. The current president, Fattah el-Sisi, was a military general who resigned to contest the presidency as a civilian, but remains a soldier essentially. Connected to the foregoing, all boards of parastatals, universities and other public agencies are headed by active or retired soldiers.¹⁴⁸ Once the military entrenches itself in government, a ‘deep state’ is created

¹⁴⁸ Saad, M., 2019. The Military component of the Counterrevolution-Egypt case-The root causes of the deep-state and its military hardcore counterattack against Egypt uprising.p. 178

which could undermine civilian rule, and if push comes to shove, it can oust the civilian government.

With the ouster of democratically elected Morsi, the lesson learnt here is that the permeation of the military in all sectors of the economy may lead to the toppling of a democratically elected government and its replacement with the military. The securocrats in Egypt not only disposed of a civilian government but proceeded to arm-twist the African Union to amend its principle regarding unconstitutional government changes in its Democracy Charter.

The summit of July 2014 that adopted the AU Panel's Report on Egypt recommended that 'good coups' will be allowed going forward. It recommended that the AU would in future be accepting military coups in the case where the government plunges into total authoritarianism such that it forfeits its legitimacy, when the transition process is lacking or is totally ineffective, when popular uprisings are triggered, and, involve a significant part of the population. The fear in Kenya is for the country to go the way of Egypt after the militarization of many state entities, food security included.

Conclusion

This chapter has discussed the constraints to the military participation in food security. The discussions in the chapter show that there needs to be a constitutional basis for the military's participation in food security initiatives (e.g. by amending the constitution to facilitate this). As this is done, the militarisation of the state should be avoided in action and in spirit: the citizens should not feel that they are being edged out participation in state affairs by the military. Egypt is a country that has virtually militarized its affairs, and therefore the fear in Kenya is for the military to take up a big part of public affairs as is the case in Egypt.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the study's findings, with the study being based on the role of the military in national food security strategies: A comparative analysis of Egypt and Kenya. The findings are discussed based on the objectives. This chapter also presents conclusions and recommendations of the study that are drawn from the findings.

5.2 Findings of Objective One: To Assess the Contribution of the Military to Food Security in Kenya and Egypt from 2010

Under this objective, the contribution of the military to food security in Kenya and Egypt from 2010 was discussed and the following findings emerged:

5.2.1 The Military's Central Role in the Achievement of Food Security in Egypt

In Egypt, the military has played a central role in food security, given the country precarious food security situation. Military food self-sufficiency, following military weapon self-sufficiency, has been used to try and inspire the country to food self-sufficiency or food security. The country, a heavy importer of food, particularly wheat, has relied on the army so heavily that the army's output is as high as 18% of the national food output. This shows that the Egyptian armed forces play a key role in the nation's food security initiatives. Military bakeries have been called upon to stabilize the food (bread) markets; while military supermarkets that are distributed across the nation are particularly useful in meeting the food security goals of the most vulnerable citizens.

5.2.2 Food Security as a Primary Prerequisite for National Stability in Egypt

In Egypt, it is established that the main cornerstone of national stability is food security. With only a third of the country being arable and with over 100 million citizens, feeding the population is one of the key nightmares that the Egyptian government grapples with. Reliance on state subsidized staple foods means that the state has to regularly keep tabs on the prices of food, lest inflation drives food prices up and causes riots that may topple the government, as was the case with President Morsi. The military has, for this reason, been central to the country's food security initiatives, including producing food for its consumption but with an eye on meeting the national needs for food.

5.2.3 Centrality of the National Level Coordination Mechanism for Egyptian Military's participation in Food Security

Given the centrality of food security in the political life of the country, as is discussed in the previous section, Egypt has established the Logistics and Engineering Authorities of the Armed Forces which involve the Prime Minister, relevant ministers, the military and sometimes the President in person. This mechanism ensures that the military participates in national food security projects efficiently and involves competent civilians under military commanding officers.

5.2.4 The Military's big Impact in Food Security in Kenya

Under the Kenya Ordinance Factories Corporation (KOFC), food production issues have been given prominence, particularly in ration production i.e. dehydrated vegetables at the Gilgil Factory, water bottling at the Thika Factory, confectionery production (Eldoret, Gilgil and Moi Air Base Bakeries, Maize Milling (Eldoret) and Meat Processing (Athi River Factory).¹⁴⁹

¹⁴⁹ Oduor, Erick John. "The Military and Kenya's Big Four Agenda: The Case Of Infrastructure." PhD diss., United States International University-Africa, 2019.

Surpluses from these factories are disposed for national consumption. The Food Production Facility (FPF) by the Kenya Defense Forces shows that the military can turn around a previously failed parastatal into profit making. Apart from processing agricultural produce that it produces, the facility also supports farmers in Narok, Nyeri, Nyandarua, Nakuru, and Elgeyo Marakwet counties.¹⁵⁰ This shows that the military in Kenya has great potential of being a key player in the achievement of food security in the country.

5.3 Findings of Objective Two: To Establish the Factors Contributing to a Facilitative Environment for Effective Involvement of the Military in Food Security Programmes in Kenya and Egypt from 2010.

Under this objective, the study sought to establish the factors contributing to a facilitative environment for effective involvement of the military in food security programmes in Kenya and Egypt, and the following findings emerged.

5.3.1 The National Defense University-Kenya as a Training Centre for Top Military and Civilian Professionals

Established in Karen, apart from this college producing top military officers, more importantly, it has facilitated the interaction of military and civilian policymakers cohesively and harmoniously, to ensure that national development, including food security issues, can be better addressed. The top-quality training offered by the University makes it an institution of choice for military and civilian officers, thus spreading the benefits to the other countries. With military-civilian engagement in this institution, the graduates can further engage in collectively working towards food security initiatives in the country.

¹⁵⁰ Ibid

5.3.2 Military Success after Civilian Failure as a Showcase of Military participation in Civilian Affairs

The efficiency of military led institutions where civilian led institutions have failed have given credence to the fact that the military can perform well where civilians fails. The achievements of the Nairobi Metropolitan Services under General Hussein Badi, are starkly contrasted with the failures of civilian governor Mike Mbuvi Sonko. The turnaround of the Kenya Meat Commission in 2020/21 by a military team after seven decades of historic losses and intermittent closures further illustrates the strategic importance of involving the military in otherwise civilian operations which the civilians themselves have not been able to turn around.

5.3.3 Military Characteristics and Resources in Achievement of National Food Security

In situations where there is no war, the military is well resourced with professionals who can contribute to the achievement of food security in various sectors of the country. Involving them in food security initiatives such as the KDF at KMC in Athi River therefore constitutes efficient utilization of these resources. Military discipline, a key characteristic of the military forces, also presents an attractive characteristic to guarantee the success of the initiatives related to food security that the military maybe involved in. lastly, the military has heavily involved in capital machinery that may be utilised in food security initiatives, instead of lying idle and falling behind the fast evolving globalisation. These factors positively and attractively make the military a strong ally to civilian governments in food production initiatives.

5.3.4 US Military Agriculture Development Teams' and Impact on Afghanistan's Economy

Until the recent withdrawal of the US from Afghanistan, the use of ADTs each constituting of 12 soldiers who are skilled in geoscience, agronomy, veterinary science, engineering, agricultural marketing, and pest management was pivotal in delivering success to the nation.

In an example of illustrating the usefulness of disposing military personnel to food security and allied operations, these teams, 49 of them in 9 states, generated \$42million to the economy, working on about 700 projects. This shows that such a model can work with tremendous success and positive outcomes if replicated in other countries.

5.3.5 Military involvement in food security in Indonesia averts Anarchy, ensures Food Security

Indonesia has existed in a state of anarchy due to heavy devolution and decentralization of functions to lower levels of government; the lower government levels have formulated over 12,000 policies, many of which are in contrast with those of the national government. Worse still, and more disturbing, is that corruption is endemic, with 318 out of 534 local government heads are arraigned by the Corruption Eradication Commission. The national government wisely employed the military in running the affairs of local governments. Since the military has a structure that runs up to the village level, it was easy to use this structure to undertake initiatives in the agriculture sector, and by so doing, the military helped the agriculture ministry in the country to achieve food security. This practice from Indonesia shows that the military structure can be employed in food security initiatives to save the country where civilian structures are found to be corrupt and inept.

5.3.6 Nigerian Military Innovative Reforms end Historic Pastoralist-Farmer Conflicts, Assure Food Security and Permanent Peace

In a country where close to half of the annual deaths (44%) in 2016 arose from conflicts between pastoralists and farmers and caused revenue losses of \$13.7billion in four states, food security has been direly threatened, with national production falling 30% less than the per capita requirements. However, the military established the Nigerian Army Farms and Ranches Limited (NAFARL) that quickly introduced ranches i.e. sedentary livestock production in a 50:50 partnership with local communities. Military lands have also been extensively used for

agriculture. Civilians mainly maintain the projects, and the result has been increased livestock and crop production, and sustained peace in previous hotspots. This innovation of the Nigerian government is a best practice that can be adopted in many countries of the world.

5.3.7 Benefits of the Military Take Over of the Kenya Meat Commission

Despite the Kenya Meat Commission operating for seven decades without financial success, the introduction of military management into its operations saw an instant change in its financial fortunes, with meat and horticulture processing ensuring food sufficiency for the military as well as contributing to national food security. Schools and selected private enterprises while donations have been given to disaster affected areas within and outside the country. This is a best practice example of how the military can contribute to national food security in a country.

5.4 Findings of Objective Three: To investigate the Constraints to Effective Participation of the Military in Achieving Food Security in Kenya and Egypt from 2010.

The third objective of the study sought to investigate the constraints to effective participation of the military in achieving food security in Kenya and Egypt and the following findings were established.

5.4.1 Constitutional Impediments to Military Involvement in Food Security and other Civilian Programmes

It is noted that the Constitution of Kenya 2010 is clear on the role of the military; and hence constitutionalists argue that at times, involvement of the military in traditional civilian affairs constituted a breach of the constitution. Sometimes this has been done without following due process, as was the case with the handing over of th KMC to the military, whereby constitutionalists cried foul that public participation was not done. Therefore constitutional

requirements constitute a hindrance to the participation of the military in civilian affairs, food security included.

5.4.2 Conflict with existing Government Structures and Agencies

Often, the involvement of the military in duties that are usually handled by other organs, even in the security sector, may sometimes cause a conflict with existing organs or structures. For example, when the military keeps security in Kenya's capital City under the Nairobi Metropolitan Command, it is inevitably set up against the Kenya Police Service; by taking over some food security initiatives, the military may be in conflict with the civilian authorities under which the initiatives fall. The overriding fear of many Kenyans is the militarization of the sectors of the country, which citizens fear.

5.4.3 Fear of Egypt-Style Militarization, Militarism and Preatorianism

Egypt is a country where the military pervades almost every sphere of national life, with close to two thirds of its government departments (17 out of 27) being headed by the military. The current president is also a former military general who resigned to contest the presidency as a civilian. This permeation of the military in all state affairs could have partially contributed to the fall of democratically elected civilian president Morsi, and the subsequent arm-twisting of the AU to legitimize 'good coups.' Even with the stellar performance of the military in the few civilian operations in Kenya, civilians still fear that the 'Egyptian Military Take Over Syndrome' could also occur in Kenya.

5.5 Conclusion

From the preceding findings, the following conclusions can be made on the role of military forces in national food security strategies: a comparative analysis of Egypt and Kenya.

First, the military plays a very key role in food security achievement in Egypt, given the central role that the military plays in state functions, food security included. The appointing of a

military personnel as the Minister for Agriculture shows that the country is keen to ensure that it is keen to stay on top of events in the area of food security. Indeed, food security is equated to national security, as is evident in the food riots that pushed president Morsi out of office.

Secondly, the establishment of the KOFC has established the Kenyan military as a key player in food security initiatives. Through these industries exist to secure military food security (and they contribute to national food security by their surplus production), if upscaled, they form a good basis for securing the nation's food security goals.

Thirdly, the National Defense University- Kenya constitutes a very good ground for integrating civilian and military policy makers in all sectors, chiefly, food security. The interaction of civilian and military policy makers in the college enhances the mutual understanding of both parties and reduces the chasm between the two groups for enhanced understanding and harmonious joint working of the groups.

Fourth, where the military have been deployed in bodies or parastatals previously crippled by civilians, the results have been overwhelmingly positive and successful. This therefore means that the military can cause tremendous positive changes in areas where civilian administration has failed.

Fifth, military discipline, unity of command and direction, together with the capital / machinery resources that the military has, can be put to good use in food security and other tasks of national importance. This is exemplified by the military involvement in Indonesia and Nigeria, together with the US military involvement in Afghanistan whereby calamitous disasters have been avoided and multiple lasting benefits realized on a national scale.

Sixth, the case of the military takeover of the Kenya Meat Commission and the subsequent positive turnaround of its financial fortunes illustrates that the military can instill administrative discipline in the affairs of statutory bodies with immense benefits for the nation.

Seventh, constitutional issues, conflicts with existing government structures and agencies and a fear in Kenya of the militarization of state functions are key impediments to the involvement of the military in food security initiatives.

5.6 Recommendations

The following recommendations can be drawn from the study.

1. The success of the military in food security initiatives in both Kenya and Egypt should be used by the countries' governments to explore further areas in the food security realm and beyond. Countries should not despair with failed civilian-led institutions but they should instead seriously consider deploying the military to these for lasting, significant, positive impacts.
2. In involving the military in otherwise civilian operations, the government should create adequate awareness, involve all stakeholders and pass legislations and / or make amendments that will make way for the legal involvement of the military initiatives. In addition, all initiatives where the military are involved should carefully include civilian personnel and views in a way that makes the civilians feel that they are partners in the initiatives, for harmonious military-civilian cooperation.
3. Countries' government should continuously consider using the immense human resource and capital equipment that is under command of the military can be employed across the sectors, particularly critical sectors such as food security. This will ensure the continuous engagement of the military as opposed to waiting for wars that often are rare in the world of today, and do not often involve all battalions.

Bibliography

- Abbasi, N., Ghoochani, O. M., Ghanian, M., & Kitterlin, M. (2016). Assessment of Households' Food Insecurity through use of a USDA Questionnaire, (October). <https://doi.org/10.15406/apar.2016.04.00155>
- Abdalla, Moustafa, and Sherine Al-Shawarby. "The Tamween food subsidy system in Egypt." *The 1.5 Billion People Question* (2017): 107.
- Ajala, Olayinka. "New drivers of conflict in Nigeria: an analysis of the clashes between farmers and pastoralists." *Third World Quarterly* 41, no. 12 (2020): 2048-2066.
- Alden Wily, Liz. "The community land act in Kenya opportunities and challenges for communities." *Land* 7, no. 1 (2018): 12.
- Allam, M. N. "Participatory irrigation water management in Egypt: review and analysis." *Options Méditerranéennes Series B* 48.123-131 (2004).
- Ariga, Joshua, Thomas Jayne, Kibaara Betty, and James Nyoro. "Trends and patterns in fertilizer use by smallholder farmers in Kenya, 1997-2007." (2008).
- Ashra, Sunil, and Malini Chakravarty. "Input subsidies to agriculture: Case of subsidies to fertiliser industry across countries." *Vision* 11, no. 3 (2007): 35-58.
- Ayeb, Habib, and Ray Bush. *Food Insecurity and Revolution in the Middle East and North Africa: Agrarian Questions in Egypt and Tunisia*. Anthem Press, 2019.
- Babatunde, R. O., O. A. Omotesho, and O. S. Sholotan. "Socio-economic characteristics and food security status of farming households in Kwara State, North-Central Nigeria." *Pakistan Journal of Nutrition* 6, no. 1 (2007): 49-58.
- Bauer, Armin, Rana Hasan, Rhoda Magsombol, and Guanghua Wan. "The World Bank's new poverty data: implications for the Asian Development Bank." (2008).
- Baydas, Mayada M., Zakaria Bahloul, and Dale W. Adams. "Informal finance in Egypt: "banks" within banks." *World Development* 23, no. 4 (1995): 651-661.
- Beh, LooSee. "Public ethics and corruption in Malaysia." In *Public administration in Southeast Asia*, pp. 171-191. Routledge, 2017.
- Bell, Curtis. "Coup d'état and democracy." *Comparative Political Studies* 49, no. 9 (2016): 1167-1200.
- Bienen, Henry S., and Mark Gersovitz. "Consumer subsidy cuts, violence, and political stability." *Comparative Politics* 19, no. 1 (1986): 25-44.
- Boliko, Mbuli Charles. "FAO and the situation of food security and nutrition in the world." *Journal of nutritional science and vitaminology* 65, no. Supplement (2019): S4-S8.

- Bond, Jennifer. "Conflict, development and security at the agro–pastoral–wildlife nexus: a case of Laikipia County, Kenya." *Journal of development studies* 50, no. 7 (2014): 991-1008.
- Bore, Cynthia. "Assessment Of Determinants Of Under-Nutrition And Food Security Among The Elderly In Moiben Sub-County, Uasin Gishu County." PhD diss., University of Eldoret, 2019.
- Boyer, Jefferson. "Food security, food sovereignty, and local challenges for transnational agrarian movements: the Honduras case." *The journal of peasant studies* 37, no. 2 (2010): 319-351.
- Bryan, Elisabeth, Claudia Ringler, Barrack Okoba, Carla Roncoli, Silvia Silvestri, and Mario T. Herrero. "Coping with climate variability and adapting to climate change in Kenya: Household and community strategies and determinants." (2010).
- Burk, James. "Theories of democratic civil-military relations." *Armed Forces & Society* 29, no. 1 (2002): 7-29.
- Charlton, Karen E., and Donald Rose. "Nutrition among older adults in Africa: the situation at the beginning of the millenium." *The Journal of nutrition* 131, no. 9 (2001): 2424S-2428S.
- Cohen, Herman. *Intervening in Africa: superpower peacemaking in a troubled continent*. Springer, 2000.
- Corburn, Jason, and Chantal Hildebrand. "Slum sanitation and the social determinants of women's health in Nairobi, Kenya." *Journal of environmental and public health* 2015 (2015).
- Darmon, Nicole, and Adam Drewnowski. "Does social class predict diet quality?." *The American journal of clinical nutrition* 87, no. 5 (2008): 1107-1117.
- Darwish, K. H., M. Safaa, A. Momou, and S. A. Saleh. "Egypt: land degradation issues with special reference to the impact of climate change." In *Combating Desertification in Asia, Africa and the Middle East*, pp. 113-136. Springer, Dordrecht, 2013.
- Deng, Biong Kuol. "Cooperation between Egypt and Sudan over the Nile River Waters: The challenges of duality." *African Sociological Review/Revue Africaine de Sociologie* 11, no. 1 (2007).
- Diao, Xinshen, Peter Hazell, and James Thurlow. "The role of agriculture in African development." *World development* 38, no. 10 (2010): 1375-1383.
- Diwakar, Vidya, and Andrew Shepherd. "Understanding poverty in Kenya: A multidimensional analysis." (2018).

- Easterly, William. "What did structural adjustment adjust?: The association of policies and growth with repeated IMF and World Bank adjustment loans." *Journal of development economics* 76, no. 1 (2005): 1-22.
- Emongor, R. A. "Food price crisis and food insecurity in Kenya." *Kenya Agricultural Research Institute* (2014).
- FAO Policy Brief Issue 2 2006
- FAO. (1996). Rome Declaration on World Food Security
- Food Crises and Political Turmoil: The Impact of Egypt's Military Intervention on National Food Security by Lauren Power 11 JULY 2013 FDI Team
- Freistein, Katja. "Effects of indicator use: a comparison of poverty measuring instruments at the World Bank." *Journal of Comparative Policy Analysis: Research and Practice* 18, no. 4 (2016): 366-381.
- Fyfe, Alec. *The use of contract teachers in developing countries: Trends and impact*. Geneva: ILO, 2007.
- Gall, Meredith Damien, Walter R. Borg, and Joyce P. Gall. *Educational research: An introduction*. Longman Publishing, 1996.
- Galvin, Kathleen A., Philip K. Thornton, Randall B. Boone, and Jennifer Sunderland. "Climate variability and impacts on East African livestock herders: the Maasai of Ngorongoro Conservation Area, Tanzania." *African Journal of Range and Forage Science* 21, no. 3 (2004): 183-189.
- Gavrilova, Nina G. "Soldiers as farmers: army agriculture and food security in contemporary Nigeria." In *BIO Web of Conferences*, vol. 27. EDP Sciences, 2020.
- Gitau, Raphael, Simon C. Kimenju, Betty Kibaara, James K. Nyoro, Michael Bruntrup, and Roukayatou Zimmermann. *Agricultural Policy-Making in Sub Saharan Africa: Kenya's Past Policies*. No. 680-2016-46763. 2008.
- Goetz, Anne Marie, and Rob Jenkins. "Reinventing accountability." *Making Democracy Work for Human Development. Primera Edición. Gran Bretaña: Palgrave Macmillan* (2005).
- Goldberg, Karen A. "Efforts to prevent misuse of pesticides exported to developing countries: Progressing beyond regulation and notification." *Ecology LQ* 12 (1984): 1025.
- Grant, Ursula. "Urbanization and the employment opportunities of youth in developing countries." *Background paper prepared for EFA Global Monitoring Report* (2012).
- Haro, Guyo O., Godana J. Doyo, and John G. McPeak. "Linkages between community, environmental, and conflict management: Experiences from Northern Kenya." *World development* 33, no. 2 (2005): 285-299.

- Idris, Iffat. "Gender and countering violent extremism (CVE) in the Kenya-Mozambique region." (2020).
- Jonah, Coretta MP, Winnie C. Sambu, and Julian D. May. "A comparative analysis of socioeconomic inequities in stunting: a case of three middle-income African countries." *Archives of Public Health* 76, no. 1 (2018): 1-15.
- Joya, Angela. "The military and the state in Egypt: class formation in the post-Arab uprisings." *British Journal of Middle Eastern Studies* 47, no. 5 (2020): 681-701.
- Kagoro, Jude. "Competitive authoritarianism in Uganda: The not so hidden hand of the military." *Zeitschrift für vergleichende Politikwissenschaft* 10, no. 1 (2016): 155-172.
- Karamba, Wendy R., Esteban J. Quiñones, and Paul Winters. "Migration and food consumption patterns in Ghana." *Food policy* 36, no. 1 (2011): 41-53.
- Kassim, Yumna, Mai Mahmoud, Sikandra Kurdi, and Clemens Breisinger. "An agricultural policy review of Egypt: First steps towards a new strategy." (2018).
- Kenya Meat Commission Business Plan (2021 – 2025)
- Kenya Meat Commission Business Plan, 2020.
- Khalid, M., Schilizzi, S., & Pandit, R. (2012). The Determinants of Rural Household Food Security for Landless Households of the Punjab , Pakistan. P. 233
- Kibicho, Francis M. "The role of military in national development: a case study of Kenya." PhD diss., 2005.
- Kidwell, Deborah C. *Public war, private fight? The United States and private military companies*. Army Command And General Staff Coll Fort Leavenworth Ks Combat Studies Inst, 2005.
- Kimiywe, J. "Food and nutrition security: challenges of post-harvest handling in Kenya." *Proceedings of the Nutrition Society* 74, no. 4 (2015): 487-495.
- Kinyua, Anne Ngima. "Factors affecting the performance of Small and Medium Enterprises in the Jua kali sector in Nakuru Town, Kenya." PhD diss., Egerton University, 2013.p.56
- Kiome, Romano. "Food security in Kenya." *Nairobi: Ministry of Agriculture, Kenya* (2009).
- Kirimi, Lilian, Nicholas Sitko, Jayne TS, Francis Karin, Milu Muyanga, Megan Sheahan, James Flock, and Gilbert Bor. "A farm gate-to-consumer value chain analysis of Kenya's maize marketing System." (2011).p. 59
- Kishine, Masahiro, Keitaro Suzuki, Sumiko Nakamura, and Ken'ichi Ohtsubo. "Grain qualities and their genetic derivation of 7 new rice for Africa (NERICA) varieties." *Journal of agricultural and food chemistry* 56, no. 12 (2008): 4605-4610.

- Lieutenant Colonel (Dr) Githua A. *Conceptualizing Global Health and Military Medical Intelligence towards National Security; A New Frontier*, Kenya Defense Forces, Majeshi Yetu, Vol 21, 2021. p. 10
- Lieutenant General Mwangi, Jonah. Vice Chancellor National Defense University-Kenya: *Reshaping Education in National Defense and Security. A New Frontier*. Kenya Defense Forces, Majeshi Yetu, Vol 21, 2021. p. 13
- Livestock, ASAL Based. "Rural Livelihoods Support Project (ALLPRO)(2007). Kajiado: Overview of the District."
- Löfgren, Hans, and Moataz El-Said. "Food subsidies in Egypt: reform options, distribution and welfare." *Food Policy* 26, no. 1 (2001): 65-83.
- Mabiso, Athur, Karl Pauw, and Samuel Benin. "Agricultural growth and poverty reduction in Kenya: Technical analysis for the Agricultural Sectoral Development Strategy (ASDS)—Medium Term Investment Plan (MTIP)." *Regional Strategic Analysis and Knowledge Support System (ReSAKSS) Working Paper 35* (2012).
- Mahmoud, M. A. "Impact of climate change on the agricultural sector in Egypt." *Conventional Water Resources and Agriculture in Egypt* (2017): 213-227.
- Maj Ochieng J. *Infrastructure Development and Modernization; A New Frontier*. Kenya Defense Forces, Majeshi Yetu, Vol 21, 2021. p. 8
- Marshall, Shana. *The Egyptian armed forces and the remaking of an economic empire*. Washington, DC: Carnegie Endowment for International Peace, 2015.
- Masibo, Peninah K., and Donald Makoka. "Trends and determinants of undernutrition among young Kenyan children: Kenya Demographic and Health Survey; 1993, 1998, 2003 and 2008–2009." *Public health nutrition* 15, no. 9 (2012): 1715-1727.
- Matanda, Dennis J., Maurice B. Mittelmark, and Dorcus Mbithe D. Kigaru. "Child undernutrition in Kenya: trend analyses from 1993 to 2008–09." *BMC pediatrics* 14, no. 1 (2014): 1-13.
- Mazloun, Alaa, Abdelrahman Rizk, Norhan Muhab, and Zainab Asal. "Addressing Food Insecurity in Egypt: Towards Sustaining Food Access for All (2021).
- Mgendi, George, Mao Shiping, and Cheng Xiang. "A review of agricultural technology transfer in Africa: Lessons from Japan and China case projects in Tanzania and Kenya." *Sustainability* 11, no. 23 (2019): 6598.
- Mohajan, Haradhan. "Food and nutrition scenario of Kenya." (2014): 28-38.
- Mohammed, A., Khaled A. Abu-Taleb, Nasser H. Saleh, and Abd-Elraouf M. Ali. "Water Monitoring in Lake Nasser using Satellite data."

- Muiya, Bernard Munyao. "The Nature, Challenges and Consequences of Urban Youth Unemployment: A Case of Nairobi City, Kenya." *Universal journal of educational research* 2, no. 7 (2014): 495-503.
- Murugu, Pius M. "The challenges and opportunities of decentralized political systems: lessons for Kenya from India and Nigeria." PhD diss., University of Nairobi, 2014.
- National Research Council. *Toward sustainable agricultural systems in the 21st century*. National Academies Press, 2010.p. 147.
- Naylor, Rosamond L., and Walter P. Falcon. "Food security in an era of economic volatility." *Population and development review* 36, no. 4 (2010): 693-723.p. 699
- Ngigi, S. "Review of irrigation development in Kenya." *The changing face of irrigation in Kenya: Opportunities for anticipating change in eastern and southern Africa* 14 (2002): 35-54.p. 43
- Nsabuwera, Vincent. "Social-Economic Determinants of Food Security among Smallholder Farmers in Burera District, Rwanda." PhD diss., JKUAT-AGRICULTURE, 2019. P. 45
- Nyamu, George Murithi, and James Kathuri Ndwiga. "The Challenges of the Meat Industry That Impact on the Operations of Kenya Meat Commission."
- Oduor, Erick John. "The Military and Kenya's Big Four Agenda: The Case Of Infrastructure." PhD diss., United States International University-Africa, 2019.
- O'Kane, Gabrielle. "COVID-19 puts the spotlight on food insecurity in rural and remote Australia." *The Australian Journal of Rural Health* 28, no. 3 (2020): 319.
- Oluoko-Odingo, Alice Atieno. "Vulnerability and adaptation to food insecurity and poverty in Kenya." *Annals of the Association of American Geographers* 101, no. 1 (2011): 1-20.
- Onditi, Francis, Gilad Ben-Nun, Edmond M. Were, Israel Nyaburi Nyadera, and General Robert Kariuki Kibochi. "Systems Thinking Approach for Africa."
- Ortiz, Isabel, and Matthew Cummins. "When the global crisis and youth bulge collide." *Double the Jobs Trouble for Youth* (2012).
- Ouédraogo, Emile. *Advancing military professionalism in Africa*. NATIONAL DEFENSE UNIV FORT MCNAIR DC AFRICA CENTER FOR STRATEGIC STUDIES, 2014.
- Patrick, Stewart, and Kaysie Brown. "The Pentagon and global development: making sense of the DoD's expanding role." *Available at SSRN 1101526* (2007).
- policy review of Egypt: First steps towards a new strategy." (2018).

- Power, Lauren. "Death on the Nile: Egypt's Burgeoning Food and Water Security Crisis." *Future Directions International, Australia* (2014).
- Power, Lauren. "Food Crises and Political Turmoil: The Impact of Egypt's Military Intervention on National Food Security." *Future Directions International, Strategic Analysis Paper* (2013).
- Radwan, Taher M., G. Alan Blackburn, J. Duncan Whyatt, and Peter M. Atkinson. "Dramatic loss of agricultural land due to urban expansion threatens food security in the Nile Delta, Egypt." *Remote Sensing* 11, no. 3 (2019): 332.
- Ramadan, Racha. "Food security and its measurement in Egypt." *CIHEAM Watch Letter* 32 (2015).
- Revoredo-Giha, Cesar, Hasibi Zavala-Nacul, and Luiza Toma. "Assessing an Increase of Orphan Crops in the Kenyan Diet." (2021).
- Rhee, Inbok. "Electoral Security and Legislator Attention: Evidence from the Kenyan National Assembly Debates, 2008-2017." *KDI School of Pub Policy & Management Paper* 19-18 (2019).
- Saad, M., 2019. The Military component of the Counterrevolution-Egypt case-The root causes of the deep-state and its military hardcore counterattack against Egypt uprising.
- Sakr, D., and A. Abo Sena. "Cleaner production status in the Middle East and North Africa region with special focus on Egypt." *Journal of cleaner production* 141 (2017): 1074-1086.
- Salami, Adeleke, Abdul B. Kamara, and Zuzana Brixiova. *Smallholder agriculture in East Africa: Trends, constraints and opportunities*. Tunis: African Development Bank, 2010.
- Sasson, Albert. "Food security for Africa: an urgent global challenge." *Agriculture & Food Security* 1, no. 1 (2012): 1-16
- Sasson, Albert. "Food security for Africa: an urgent global challenge." *Agriculture & Food Security* 1, no. 1 (2012): 1-16
- Sebastian, Leonard C., Emirza Adi Syailendra, and Keoni Indrabayu Marzuki. "Civil-military relations in Indonesia after the reform period." *asia policy* 13, no. 3 (2018): 49-78.
- Sheahan, Megan, John Olwande, Lilian Kirimi, and Thomas S. Jayne. "Targeting of Subsidized Fertilizer Under Kenya's National Accelerated Agricultural Input Access Program (NAAIAP)." (2014).

- Shiferaw, Bekele A., Gideon A. Obare, and Geoffrey Muricho. *Rural institutions and producer organizations in imperfect markets: Experiences from producer marketing groups in semi-arid eastern Kenya*. No. 577-2016-39211. 2006.
- Strasberg, Paul J., Thomas S. Jayne, Takashi Yamano, James K. Nyoro, Daniel David Karanja, and John Strauss. *Effects of agricultural commercialization on food crop input use and productivity in Kenya*. No. 1096-2016-88433. 1999.
- Stucker, Sara. "Johnston High School, Iowa Caring For Kenya Imagine living in a country where ethnic clashes break out daily, where 31% of the population is undernourished, and around 5.6 million are defined as 'food insecure' (World Food Programme). Sub."
- Talba, Jibril Musa, and Umar Babagana Imam. "Unimaid Microfinance Bank, Agent Of Poverty Reduction In Borno."
- Tellioglu, Isin, and Panos Konandreas. "Agricultural policies, trade and sustainable development in Egypt." *Geneva: International Centre for Trade and Sustainable Development (ICTSD) and Rome: United Nations Food and Agriculture Organization (FAO)* (2017).
- U.S. Congress, "House Rpt. 114-482: Global Food Security Act of 2015," (Washington, DC: U.S. Congress, 2016), Sec. 2.
- Walls, Helen, Phillip Baker, Ephraim Chirwa, and Benjamin Hawkins. "Food security, food safety & healthy nutrition: are they compatible?." *Global Food Security* 21 (2019): 69-71.
- Waterbury, John. *Exposed to innumerable delusions: Public enterprise and state power in Egypt, India, Mexico, and Turkey*. Cambridge University Press, 1993.
- Yehia, Yehia Abd El-Rahman, and Doaa Mamdouh MM Soliman. "The Impact of Restructuring Principal Bank for Development and Agricultural Credit (PBDAC) on Financing the Agricultural Sector in Egypt." *Indian Journal of Economics and Business* 21, no. 1 (2022).
- Zakhary, Safwat Yousef, and Mohamed Ismail. "Restructuring Government Seed Centers into Private Small-scale Enterprises in Egypt." *Experiences of Existing Small-scale Seed Enterprises* (1997): 61-119.