

UNIVERSITY OF NAIROBI

INSTITUTE OF DIPLOMACY AND INTERNATIONAL STUDIES (IDIS)

**AN ASSESSMENT OF THE AGRICULTURAL RELATIONS BETWEEN ISRAEL AND
KENYA: CASE STUDY OF THE GALANA KULALU IRRIGATION SCHEME.**

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**A Research Project Submitted in Partial Fulfillment for the Award of the Master of Arts in
International Studies, Institute of Diplomacy and International Studies,
University of Nairobi**

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Declaration

This project is my original work and has not been submitted for a degree to any other University.

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This project has been submitted for examination with my approval as the University supervisor.

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Date.....

Abstract

Generally, this study is about the agricultural relations between Kenya and Israel, using the Galana Kulalu Irrigation Scheme as a case study. Consequently, it examined the growth and development of the bilateral relations between Kenya and Israel in various fields before discussing the status, challenges, opportunities and prospects of the Galana Kulalu Irrigation Scheme that is being undertaken with the help of the Israelis to help curb the hunger menace in the country. At the end, several recommendations were made to make the fight against food insecurity more effective. The study also set out two hypotheses namely that the problems of hunger and food insecurity in Kenya are as a result of poor planning by the responsible bodies and organizations, and secondly that there is a positive correlation between the strengthening of Kenya-Israel ties and boosting food security in Kenya. The study which depended largely on secondary data with intermediate use of tables and diagrams including thematic approach to present the information was situated within the complex interdependence conceptual framework.

The study found out that the causes of hunger in Kenya include conflicts, climate change, over-reliance on rain fed agriculture, and the ever growing population that makes it difficult for the government and other agencies to provide decent living standards for all Kenyans. In the recent years, food insecurity has mainly been attributed to climatic factors that are beyond human control like global warming, which has seen the country experience rains during seasons that are expected to be dry, and no rain at all during the seasons that are expected to be rainy. However, there are also man-made factors that make food security difficult to achieve like misappropriation of funds meant for relief food or food security projects. The study found out that in the past there has been lack of technical know-how of modern irrigation techniques to ease the hunger menace, hence making the dream of a food secure Kenya a more elusive one. The impacts of food insecurity are several. They include; Children in food insecure areas, and where the school feeding programme is absent, are usually forced to drop out of school. Under-nutrition among infants also affects negatively their cognitive capabilities as well as their immune systems.

Lastly, the study has given recommendations to boost food security in Kenya. They include; That the government should expand its strategic food reserve from storing only maize, as has been the case over the years. Although the study acknowledges the government's move to add rice to its food reserve, it further suggests inclusion of other food products to include milk, pulses, fish and meat products. Secondly, the irrigation potential in the country should be explored especially by putting the areas along the Tana, Athi, Yatta, Nyando and Nzoia basins under irrigation. Thirdly, the study comes up with two areas for further academic research; Seeing that the project is in its initial stages, there should be further research in its subsequent phases, and also that since Israel and Kenya are viable economic partners, especially after President Uhuru's launch of direct flights from Nairobi to Tel Aviv, further research could be done on the economic aspect of Kenya-Israel relations.

Abbreviations

ADC	Agricultural Development Corporation
ASAL	Arid and Semi-Arid Land
BADEA	Arab Bank for Economic Development in Africa
C.N.N	Cable News Network
EEC	European Economic Community
FAO	Food and Agriculture Organization
GKNFSP	Galana Kulalu National Food Security project
GOK	Government of Kenya
IGAD	Intergovernmental Authority on Development
ITC	International Trade Centre
JKUAT	Jomo Kenyatta University of Agriculture and Technology
JOCA	Japan Overseas Cooperative Association
KARI	Kenya Agricultural Research Institute
LAPSSET	Lamu Port Southern Sudan-Ethiopia
MASHAV	Hebrew Acronym for International Development Cooperation
MDGs	Millennium Development Goals
NACOSTI	National Commission for Science, Technology and Innovation
NATO	North Atlantic Treaty Organization
NCPB	National Cereals and Produce Board
NIB	National Irrigation Board
OAU	Organization of African Unity
ODA	Official Development Assistance
PFLP	Popular Front for the Liberation of Palestine
PLO	Palestinian Liberation Organization
SDGs	Sustainable Development Goals
SGR	Standard Gauge Railway
TNT	Trinitrotoluene
U.N	United Nations
U.S	United States
USAID	United States Agency for International Development

Dedication

I dedicate this research project to my mother Esther Njoki Kanyuira, who worked tirelessly to ensure that my siblings and I attained the level of education we all desired, and for always encouraging me that all my academic dreams are indeed achievable.

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Chapter One

Introduction to the Study

Background to the Study

Food security is a serious global issue. The numerous conferences and researches conducted around the area of food security are a testament of this fact.¹ According to a study report by the Food and Agriculture Organization (FAO), there is a global population of about 7.3 billion people, and out of those, 795 million are hungry or they lack food security.² That then means that out of every nine people in the world, one of them is hungry. 780 million of the 795 million hungry people come from developing countries. The developed countries also have their own share of hungry people. One million people suffer from undernourishment in the developed world.³

The inclusion of the food security topic in the international agenda further shows the weight of this matter. During the seventieth anniversary of the United Nations in New York in September 2015, The Heads of States and Governments summit came up with the Sustainable Development Goals (SDGs). Goal number two is about ending hunger, achieving food security, improving nutrition as well as promoting sustainable agriculture to all including infants by the year 2030.⁴

A brief assessment of the Millennium Development Goals (MDGs), that preceded the SDGs indicates that they did not achieve their goal when it comes to food security. The goal of the 1996 World Food Summit was to reduce the number of people suffering from undernourishment by 2012 from 991 million to 495 million in the period between 1990 to 1992. The target was not

¹Willet J. (1976) The World Food Situation. Problems and Prospects to 1985. Vol2. Oceana Publications, Inc. New York. P. 552

² www.fao.org/home/en/ Retrieved on 1st July 2017

³ Ibid

⁴ <https://sustainabledevelopment.un.org/topics/foodagriculture> retrieved 1st July 2017

reached by the time the Millennium Development Goals expired in 2015, as there were still 790 million undernourished people in the world.⁵

Of importance to note however is that Sub-Saharan Africa has seen the least progress when it comes to achieving food security, whereby the current statistics state that out of four people, one of them is suffering from undernourishment.⁶ Apart from the food security projects that Kenya undertakes in the country with the help of donors,⁷ Kenya also cooperates with her neighbors whenever there is food shortage in the country.⁸

At the 9th Session of the UN commission on Sustainable Development, the government of Kenya stated that it cooperates with the Inter-Governmental Authority in Development (IGAD) countries. IGAD countries are Kenya, Uganda, Ethiopia, Sudan and Somalia.⁹ Kenya however does not restrict herself to IGAD member countries only. In 2017, Uganda and Tanzania who are Kenya's immediate neighbours did not have a good harvest in the previous season, so they could not help Kenya out. It is then that Kenya entered into negotiations with Zambia and Zambia agreed to sell to Kenya 55,000 tonnes of maize.¹⁰

Over 80% of Kenya's total land mass is arid and Semi-Arid,¹¹ hence multilateral cooperation is completely essential when it comes to combating food insecurity. Rapid population growth in the 1950s necessitated the development of irrigated agriculture.¹² A 2016 Global hunger index report ranked Kenya 46th globally in terms of the world's hungriest countries, with 21.9%

⁵ Ibid

⁶ www.fao.org (2015) pg. 8-12)

⁷ www.nib.or.ke

⁸ www.un.org/esa/agenda21/natlinfo/country/kenya/natur/html 2/7/17

⁹ Ibid

¹⁰ Maureen K.(2017) Kenya Imports Maize From Zambia in *Business daily of 27/6/17* p.14

¹¹ National Development Plan Report by the Government of Kenya (1994-1996)

¹² www.nib.or.ke

hunger levels.¹³ Among the founding East African community countries, Kenya is rated as the least hungry country.

It was followed by Uganda that came in position thirty-two globally with 26.14% of her population facing hunger. Tanzania on the other hand was termed to be the hungriest of the three countries, ranking at position twenty three globally with hunger levels at 28.4%. Central Africa Republic was ranked as the world's hungriest country with its hunger levels at 46.1%, while Tunisia was rated as the African country with the least hunger levels at 5.5%. According to the report, Argentina is the country with the lowest hunger levels in the world.¹⁴

Today, the causes of hunger can be attributed to factors like Conflict- It is no wonder that Sub Saharan Africa has the most people facing hunger and food insecurity. The region is faced with serious conflicts, whereby Libya and Somalia are the worst affected countries by violence with both countries at 90% conflict levels. Another cause of hunger today is the ever growing world population that makes it difficult for governments and other agencies to provide decent living standards for all.¹⁵

Climate change is also another cause of the current hunger situation. In the recent years, we have seen a situation whereby there has been rain during the non-rainy season and no rain at all during the season when there was expected to be rain.¹⁶ Cereal grains are the World's most important food crops. Maize, often referred to as corn in the United States is Kenya's main staple food, perhaps due to its adaptable nature. Scientists state that maize has a high capacity for photosynthesis and it adapts well to nitrogen fertilizer.¹⁷

¹³ www.ifpri.org/topic/global-hunger-index. Retrieved on 1st July 2017

¹⁴ Ibid

¹⁵ Art H. and Della E. (1986) Food in Sub-Saharan Africa. Lyenne Rienner Publishers, USA p.7

¹⁶ Paul H. (1987) The greening of Africa: Breaking Through in the Battle for Land and Food. Collins Publishing Group, Great Britain. p. 34

¹⁷ Willet J. op cit p 551.

In the recent years, Kenya has experienced chronic hunger and lack of food, especially in the period starting in the year 2008 to date. This can be attributed to, among others the ever growing population and insufficient rains. Kenyan farmers mainly rely on rain fed agriculture. Due to this crisis, the Government, UN bodies and Non-Governmental Organizations came together and formed the Kenya Food Security Steering Group. ¹⁸Even though the food insecurity problem in Kenya can be mainly attributed to climatic factors like global warming, there are also man-made causes, like, misappropriation of funds meant to be used for relief food or food security projects. Currently, it is estimated by the Kenya Agricultural Research Institute (KARI) that over ten million Kenyans which is a quarter of Kenya's population are food insecure, and that they rely on relief food. ¹⁹

1.1 Statement of the Research Problem

The problems of hunger and food insecurity in Kenya are largely as a result of the inability of the post-independent state to empower its legitimate institutions that deal with proper planning, oversight and disaster management. Since the independence period, the governments that followed have not been keen on seeking a lasting solution to the perennial hunger menace in the country. The situation is further worsened by biased development policies that have failed to promote equal opportunities for development nationwide. Some of the policies and recommendations end up not seeing the light of day due to, among other issues, corruption.

Furthermore, several other factors such as poor governance, over-reliance on rainfed agriculture and institutional failure have conspired to ensure food security remains an elusive dream for Kenya. Though the problem of food insecurity in Kenya is as a result of many factors,

¹⁸ <https://www.usaid.gov/kenya/agriculture-and-food-security> retrieved 1st July 2017

¹⁹ KARI(2016) Report on Food Security in Kenya retrieved from www.foodsecurityportal.org/ on 12th May 2017

institutional failure is a major one. It is in this regard that this study aims to fill the existing knowledge gap on agricultural bilateral relations as a way of enhancing food security in Kenya. This study evaluates the growth and development of these relations between Kenya and Israel. It is against this background that the study focuses on the past irrigation schemes in Kenya, with an aim of highlighting where they are located, what they grow as well as their general performance. This study also discusses the role of institutions that are tasked with managing irrigation schemes and some of the challenges they face in carrying out this task.

This study then introduces the Galana Kulalu National Irrigation Scheme, which is situated at the Coastal part of Kenya in Kilifi and Tana River counties. Due to the aid from the Israeli government, this study believes that this project holds the promise for a food secure Kenya, seeing that the Kenyan government is not ‘going it alone’ as in most of the other previous Irrigation schemes. This study therefore seeks to explore the prospects and the challenges that the project could be facing.

Though Israel is only about 22,145 square Kilometers²⁰, making it twenty-eight times smaller than Kenya, she has managed to turn her desert land into a food hub. This makes Israel the most ideal partner in such a mega project. The National Economic Food Security Project, which was launched in 2014 seeks to have four hundred thousand acres of land under irrigation. The project grows maize, with an aim of lowering the cost of maize flour, which is Kenya’s staple food.

1.2 Study Objectives

Broadly, the objective of this study is to assess the agricultural relations between Israel and Kenya with specific focus on the Galana Kulalu National Food security project.

²⁰Alain G. and Dominique V. (1987) An A to Z of the Middle East. Zed Books Limited, London. p.247

Specifically, the Objectives of the study are:

1.2.1 To assess the growth and development of the relations between Kenya and Israel since independence.

1.2.2 To evaluate the performance of selected irrigation schemes in Kenya.

1.2.3 To assess the status of the Galana Kulalu project.

1.2.4 A critical analysis of the Galana Kulalu project including opportunities and challenges.

1.3 Research Questions

1.3.1 How have the relations between the Kenyan and the Israeli Governments evolved and grown over the years?

1.3.2 How have the selected irrigation schemes in Kenya performed?

1.3.3 What is the status of the Galana Kulalu project?

1.3.4 What are the prospects, opportunities and challenges of the Galana Kulalu project?

1.4 Justification of the Study

This study has both academic and policy justifications.

1.4.1 Academic Justification

The findings of this study will benefit the society considering that the issue of food security is of concern to all and sundry. Availability of food or lack of it affects every individual in society regardless of age, sex, gender, religion or any other demographic factors. ²¹The increasing demand for food to feed the ever-growing Kenyan population justifies the need to evaluate successful agricultural projects like the Galana/Kulalu one, so as to see how the same technology and skills can be applied to other projects in the country. The perennial drought facing Kenya also

²¹KARI (2016) Op Cit.

necessitates the exploration of meaningful agricultural partnerships, like that of Kenya and Israel on the Galana/Kulalu scheme.

To scholars, this study will act as a reference point on the Galana/Kulalu Scheme, seeing that it is still a gray area. Though literature exists, it is scattered in various locations and the process of consolidating the literature to make a constructive read can be cumbersome. Despite most of Israel's land being desert, she has managed to transform it into productive land and now Israel exports fruits, nuts and vegetables to countries like the UK, Netherlands and Switzerland.²²

For academicians, it is therefore important to explore further the impact of such partnerships and how they can be strengthened as well as come up with possible recommendations of how best to improve the livelihoods of Kenyan community members as part of their goals and objectives.²³ The findings of this study will come in handy in assessing the extent to which the scheme has transformed the lives of the people of Galana/Kulalu region and the country at large.

1.4.2 Policy Justifications

The National Irrigation Board has a pillar of social corporate responsibility as part of their goals and objectives.²⁴ The findings of this study will come in handy in assessing the extent to which the scheme has transformed the lives of the people of Galana/Kulalu region. This study also seeks to establish valid recommendations that will possibly assist the policy makers in impacting positively in the Galana/Kulalu area. The recurrent problem of food insecurity reveals the institutional failures in our system. Despite the good will and the good talk, most of the policies and recommendations, end up being shelved and never implemented.

²² www. World's Richest Countries.com retrieved 23rd April 2017

²³ KARI(2016) Report on Food Security in Kenya retrieved from www.foodsecurityportal.org retrieved on 23rd April 2017

²⁴ www.nib.or.ke retrieved 23rd April 2017

This study therefore seeks to analyze the strengths and weaknesses of the available institutions that deal with the issue of food security. Generally, the study will act as a reference point for scholars as well as policy makers. In my opinion, lack of food security in the country is caused by poor planning, misappropriation of funds as well as institutional failure.

1.5 Literature Review

In the classical era of international relations, there existed a small number of actors, namely the heads of states of royal families of England, France and other European nation-states, along with their aristocratic elites. Today, however, states are the main actors in the international arena.²⁵ A state refers to a political and legal entity with supreme authority over a certain population with marked boundaries. It is a tangible entity.²⁶ Today, there are well over a hundred and sixty states.

States nurture links by establishing embassies or foreign missions in states that they are in relation with friendly states. States also nurture links through holding sessions and conventions.²⁷ These conventions bring together member states of an alliance to discuss a particular agenda. Representatives from states represent their states. Another way that states nurture links between states is by providing loans, grants and other funds to the lesser able nation-states in their alliances, or states allied to them, and where they have interests. These projects range from agricultural projects, education to technological projects.²⁸ The initiatives are usually of interest to both the donor and the beneficiary states. The partnerships are meant to be of mutual benefit to the cooperating partners.

²⁵ Pearson F. S. (1984) International Relations, 'The Global Condition in the Late Twentieth Century.' Adison Wesley publishing company, P. 147

²⁶ Rourke J. T. (1993) "International Politics on the World Stage." The Dushkin publishing group, Inc. p.85

²⁷ www.unodc.org retrieved 20/7/18

²⁸ Milner et al (2013). Which devil in development? A randomized study of citizen actions supporting foreign aid in Uganda. Working paper, Princeton University p.45

Project promoters are usually legal entities in the respective beneficiary state and the donor states. In the recent past, emergence of new donors has offered competitive advantage over the traditional donors, mainly because they do not insist on democracy and human rights as a condition to their aid. This then makes them favourable in the eyes of non-democratic regimes, that are sometimes shunned by western donors. China for instance, by policy does not interfere in the internal affairs of other countries.²⁹

Globally, several cooperative projects have been undertaken. For instance, in 2014, the Jasper solar farm was opened in South Africa. China was one of the funders of the project. The solar farm that produces roughly 180,000 Megawatts per year was started in October 2013 and opened a year later making it the largest solar power project in the continent.³⁰

In Fiji, the European Union is helping the government to improve the Agriculture and livestock sectors in the country. The EU through an organization known as International Trade center (ITC) is helping Fiji increase the value of exports of agricultural food and livestock products to the pacific region.³¹ Sugarcane farmers (which is Fiji's major source of foreign exchange and jobs in the rural areas) have been able to see high year-round incomes. This is as a result of more efficient market-led farming techniques, better organization of supply and access to market information and finances.

In 2017, Kenya started the largest infrastructural project since 1963. The four hundred and seventy two kilometers railway from Mombasa (the country's biggest port) to Nairobi was the first of its kind.³² The project that cost 3.2 billion U.S dollars was 80% financed by the Chinese

²⁹ Ibid

³⁰ www.senconexpo.com retrieved 20/7/2018

³¹ www.intracen.org retrieved 201/7/18

³² Otieno B. (2017) Standard Gauge Railway Promises Good Tidings for Tourism Sector, in Business Today of 11/7/2017 p.6

government. At 5.6 million U.S dollars per square kilometer of track, the railway has managed to cut travel time between Mombasa and Nairobi from nine hours by bus and twelve hours by existing rail to four and a half hours.³³

Japan conducts projects in other states through an arm known as Japan Overseas Cooperative Association (JOCA)³⁴. In 2009, the government of Japan agreed to fund a project in Malawi with an aim of improving the livelihoods of smallholder farmers in the country. Though the project does not involve the construction of facilities or provision of materials, it seeks to systematically nurture an attitude of self-help among the farmers.³⁵

So far, the project has been able to change the lifestyles of farmers in the targeted areas by enabling them to farm using locally available materials. The prospects and opportunities of some of these cooperative projects are really high. The developers of the Chinese funded railway in Kenya for instance have a vision for the railway to form part of what will be a much larger East Africa rail network.³⁶

It is expected to connect Ethiopia, the Democratic Republic of Congo, Sudan, Burundi Uganda and Rwanda. As things stand in Kenya currently, only five percent of the country's shipping is done via freight. The new rail's planners hope to push the number to forty percent by 2025.³⁷ Also, looking into the future, the Jasper project in South Africa is expected to continue powering household till 2025.³⁸

³³ Ibid

³⁴ www.joca.or.jp/english/activities. 20/7/18

³⁵ Ibid

³⁶ Otieno B. (2017) Op Cit.

³⁷ Ibid

³⁸ www.senconexpo.com retrieved 20/7/2018

1.6 Conceptual Framework

This study will use the complex interdependence concept which seems to explain better the relations between Kenya and Israel. It has three principles as put forward by Robert Keohane and Julius Nye.³⁹ They are: Multiple Channels- Robert Keohane and Julius Nye explain the concept of complex interdependence by contrasting it to Realism. Unlike realists who believe that states are the only actors in International relations, interdependence theorists hold that non-state actors like multinational banks or corporations have a key role to play.⁴⁰

Secondly, Keohane and Nye state that military force is not used towards governments that are in an alliance. Though they acknowledge that use of military force is not relevant in solving economics or diplomatic disputes, they however note that the use of military force may be very important with a rival bloc that is not part of the alliance.⁴¹ According to the two, it is more profitable to engage in economic cooperation than in military rivalry and competition. They state that military power is not the only form of power. Other forms of power include economic and social power.⁴² In this day and age, social media and the internet at large are seen as a form of power.

Thirdly, there is no hierarchy of issues in International Relations since all issues are seen as urgent through the lenses of the interdependence concept. Unless properly planned, these issues can be a nightmare for many governments.⁴³ According to Henry Kissinger (Former U.S secretary of state), the traditional agendas of military security, ideology and territorial competition have been overridden by a new wave of issues that all demand equal amount of attention. These issues range

³⁹ Keohane and Nye (1977) Power and Interdependence. World Politics in Transition. Little Brown and Company Boston Toronto (pg.25)

⁴⁰ Ibid

⁴¹ Keohane and Nye op. Cit. pg. 26

⁴² Keohane and Nye, op. Cit.

⁴³ Charles K. (1969), American Business Abroad. New Haven: Yale University press. p.207

from problems of energy resources, environmental population, the use of space and the sea among other issues.⁴⁴

Of importance to note however is that the most powerful country still has the most political capital when it comes to bargaining. In this situation, Israel being the donor has more say when it comes to political bargaining. Keohane and Nye define power as, ‘the potential to affect outcomes or the ability to control resources’⁴⁵ Out of the three principles of complex interdependence, there arises five political processes that will guide Israel Kenya relations. They are; Transnational and Trans-governmental relations, Linkage strategies, Agenda setting, Role of International organizations and instruments of state policy.⁴⁶

Goals differ under complex interdependence. Typically, the economic and military superior countries tend to dominate the weaker states, but not so in complex interdependence. Linking unrelated issues is seen as a strategy of poor countries to extract side payments from the rich countries, or donors, with International Organizations seen as the linkage instruments. If overdone these linkage strategies can fail to achieve the intended results.⁴⁷ Now that there is no hierarchy of issues in complex Interdependence, the politics of agenda setting or formation must somehow arise. Unlike in the past where military issues took the center stage, the agendas have greatly evolved and it is no longer just about military operation.⁴⁸

The agendas however are determined by International and domestic problems. Issues that were initially domestic finally find their way in the international arena. Hence the line between

⁴⁴ Lester R.B. (1972) World without borders. The Interdependence of Nations New York: Foreign policy Association, Headline Series. p.26

⁴⁵ Keohane and Nye (2001) Power and Interdependence. World Politics in Transition. Little Brown and Company Boston Toronto p. 10

⁴⁶ Keohane and Nye, Op. Cit. p. 25

⁴⁷ Ibid, p. 26

⁴⁸ Ibid, p. 30

domestic and foreign policy becomes blurred. Agendas also keep changing. During the period following Kenya's independence, key among the agendas between Kenya and Israel were training of pilots and medical doctors and soldiers in Israel.⁴⁹ Today, the agendas have evolved to, among others issues of food security partnerships. The presence of multiple channels in this concept makes the line between domestic and international politics even thinner.

Multinational corporations play a key role, whether they are being used by governments to advance their agendas or whether they are acting as independent actors.⁵⁰ These channels are not limited to the non-governmental sector, but also involves other government agencies. Most often, these government agencies tend to pursue their interests in the name of pursuing the interests of the whole country.⁵¹ In complex interdependence, International Organizations are a key political resource.

They give political arena to mobilize their votes, mainly in the weaker states. They come in due to the principle of multiple channels discussed earlier. Usually governments have no choice but to fit in the schedules of the International Organizations, since they define the matters and set the agendas. This can best be described by the third world countries relation with the Global body (United Nations).⁵²

1.7 Study Hypotheses

1.7.1 The problems of hunger and food insecurity in Kenya are as a result of poor planning by the responsible bodies and organizations.

⁴⁹ Kenyatta J.(1961), Facing Mount Kenya. The Tribal Life of the Kikuyu, London: Mercury books. p.3

⁵⁰ Keohane and Nye Op. Cit. p.25

⁵¹ Ibid

⁵² Brainslav G. and John G. R. "On the creation of a New International Economic Order: Issue Linkage and the seventh special session of the UN General Assembly," International Organization 30 no.2(Spring1976)pp.309-346

1.7.2 There is a positive correlation between the strengthening of Kenya-Israel ties and boosting food security in Kenya.

1.8 Research Design and Methodology

1.8.1 Case Study

Research methodology can be described as a systematic way to solve a research problem. Methodology refers to the science of trying to understand how research is conducted in a scientific manner. Case study method is an ideal method for qualitative studies, as it enables the researcher to study in a comprehensive manner a particular unit be it an institution, a group, a community or even a person.

As such, a researcher is able to understand in full the behavior of that unit.⁵³ In a case study, one is free to use one or more research methods, based on the prevailing circumstances. Methods such as in-depth interviews, questionnaires, documents, study report of individuals can be used under the Case study method. Information collected enables the researcher to design an appropriate questionnaire.

Even though the case study has several advantages, it has also some limitations among them, that it is impossible to use the case study method in a large society. Sampling can also not be done in the case study method. Case situations are rarely comparable. Case studies require more time and expenditure since the researcher studies the natural history cycles of the unit. Despite its limitations, the case study method is still highly favorable for researchers since most of these limitations can be dealt with if the researcher is conscious and well trained.⁵⁴

⁵³ Kothari, C.R (2004) Research Methodology; Methods and Techniques. 2nd Revised Edition. New Age International Publishers p.7

⁵⁴ Young, P. V. (1960), Scientific Social Surveys and Research, 3rd Ed., Prentice- Hall, New York p.247

1.8.2 Sources and Data Collection

The information used in this study was obtained from primary and secondary sources. It was gathered through personal interviews. Telephone interviews were however conducted where the respondents were not available for personal interviews. Review of literature was also done. Respondents were drawn from relevant government ministries and Organizations. They are; Ministry of Foreign affairs (Middle East Directorate) and the National irrigation Board.

Other primary sources include a reviewing legal and policy related documents like the Constitution of Kenya (2010), bilateral agreements between the governments of Kenya and Israel, Kenya's vision 2030 policy paper, the country's foreign policy paper, as well as Sessional Paper no.10 of 1965 among others. Other documents that were assessed include, archival records like organizational records like budgets over a period of time as well as maps and charts of the geographical characteristics of places. Secondary data for this study included reviewing relevant scholarly publications, articles, journals, academic papers and dissertations on Kenya-Israel relations, irrigation schemes in Kenya, cooperative projects between Kenya and other states, among others. Other secondary sources included electronic and print media like France 24, C.N.N as well as internet searches.

Phase 1- Preparatory Phase

In the first phase, preliminary discussions with scholars, researchers as well as government officials were held. This helped in narrowing down on the scope of respondents. These discussions also created a deeper understanding on the specific resource persons in the identified departments, ministries and parastatal. Data for this study was collected by interviewing the identified resource persons from; the Ministry of foreign Affairs (Middle East Directorate) and the National Irrigation Board.

The selection of these ministries was done based on the role that each of them has in the realization of the success of the Galana Kulalu national food security project, as well as advancing the bilateral relations between Kenya and Israel. The identification of resource persons was done based on the position, knowledge and understanding that they have on the bilateral relations of the two countries and the Galana Kulalu irrigation scheme. The preliminary discussions with various stakeholders was followed by a field visit to the irrigation scheme in Kilifi and Tana River counties, that was aimed at establishing contacts with the officials implementing the project on the ground. The visit was helpful in creating an in-depth understanding of the progress and the status of the Galana Kulalu scheme.

This was also an opportunity to learn the terrain of the area which helped in planning for the dates and other logistics of the actual fieldwork. During the visit, helpful information was gathered on the subject matter, which helped in formulating interview questions.⁵⁵ Before the actual interviews, the questions were revised to ensure that the information collected would be relevant, clear and precise. The interview questions set differed from the stakeholders, as the information being sought also varied.

Meaning, the interview questions for the Middle East directorate at the Ministry of Foreign Affairs were different from those of the National Irrigation Board. This study used semi-structured interviews. They are non- standardized and they allow the interviewer the liberty to change the sequence of the questions depending on the direction the interview took. An interview guide was also used but additional questions were also asked where necessary. This allowed for probing, as

⁵⁵ A list of sample questions will be provided at the appendix

it was possible to ask additional questions that were not foreseen at the beginning of the interviews. Each interview guide had not more than fifteen questions.⁵⁶

This method was effective in exploring, probing and asking questions that helped shed more light on the subject matter.⁵⁷ With the consent of the resource person, there was note taking and tape recording during the interview. It was made clear that the information was for academic purposes and that they should be assured of confidentiality. Where need be, the NACOSTI (National Commission for Science, Technology and technology and innovation) permit was produced. Specific questions were set and sent through Email beforehand, to allow them time to prepare for the interviews.

Each interview was designed to take not more than an hour. This information was provided in the Email. Information of the time and place of the interview was also provided, though it also depended on the convenience and availability of the identified resource persons. Those who were unavailable for face to face interviews were interviewed through telephone. Telephone and Email contacts of the resource persons were recorded to seek clarification during the analysis phase.

Details of the date, person and place of the interview are recorded in the findings, with an exception of respondents who did not wish to have their identity revealed. The study had targeted about fifteen resource persons, but was only able to interview eight, due to the challenge of availability of resource persons.

Phase 2 -Interviews

The second phase involved personal interviews with identified resource persons. They were; officials from the National Irrigation Board and the Ministry of Foreign affairs. The

⁵⁶ Corbetta, P. (2003) Social Research Theory, Methods and Techniques. SAGE Publications, London p.270

⁵⁷ Patton, M.Q. (2002) Qualitative Research and Evaluation Method. SAGE publications, London p.343

identification of the officials was done based on the role that they play towards the realization of the national food security project and Kenya- Israel relations, as well as their understanding of the subject matter. In certain instances, the selection of resource persons was done through snowballing reference technique⁵⁸, whereby, a primary data source nominated another potential primary data source. The interviews were designed to take not more than an hour, and a maximum of fifteen questions had been set. During the interview, recording was done to ensure that no details were left out during note-taking.

1.8.3 Data Analysis and Presentation

In analyzing the data collected, this study used both qualitative and quantitative methods. In qualitative data analysis, the information that was collected was analyzed using content analysis method.⁵⁹ Reading through the notes collected during the interview stage several times helped reconstruct the situation and pick out main themes. Content analysis is the technique in which the researcher arranges the information collected into categories and goes through it until final perspectives emerge.⁶⁰

These themes were identified through secondary literature.⁶¹ Each theme represents an idea. Data related to that theme was added under that unit. These themes were based on the objectives of the study.⁶² The recorded data was also transcribed as well as the information collected through observation. Next, subcategories and codes that emerged from the data were

⁵⁸ Yin R. (1994) Case Study Research: Design and Methods (2nd Ed.) Sage Publications, London, United kingdom p.91

⁵⁹ Denzin L. (2003) The landscape of Qualitative Research; Theories and Issues. Sage Publication, London. p.167

⁶⁰ Ibid

⁶¹ Patton, M.Q (2002) Qualitative Research and Evaluation Methods, Sage publications Thousand Oaks, CA P.67

⁶² Ibid

developed. Phrases and short notes were made at the margin to summarize what was being said in the text. Selection of the relevant phrases was also done.⁶³

In analyzing quantitative data, descriptive statistics including measures of central tendencies such as arithmetic mean, mode and median were used. In addition, the data was presented using thematic approach. A report was written based on key findings under each category/ theme, while using verbatim (verbal quotes) to illustrate the findings.⁶⁴ In presenting the data collected, diagrams that speak to the research problem were used. Tables were also used to further illustrate the data collected for this study.⁶⁵ The use of multiple sources of evidence in this study, that is archival records, direct observation and interviews worked to make the conclusions and findings of this case study convincing and accurate.

1.9 Scope and Limitations of the Study

This study examines the bilateral relations between Kenya and Israel. Scholars of International Relations have rightly stated that cooperation between the two states date back to many years.⁶⁶ The cooperation ranges from security issues, cooperation in the health sector as well as training of Kenyan pilots in the sixties. The study however focuses on the agricultural relations of the two countries. It provides an in-depth analysis of the history of agricultural cooperation as well as how friendship ties have grown between Kenya and Israel, over the years since Kenya's independence.

Pre-independence reference of cooperation will be made only in as far as relates to the research problem.⁶⁷ Previous irrigation schemes will be discussed in this work as the study seeks

⁶³John C.W. (2014) Research Design; Qualitative, Quantitative and Mixed Methods Approaches, 4th Edition. Sage Publications, London. p. 13

⁶⁴ Ibid

⁶⁵ Yin, R Op Cit. p.92

⁶⁶ Israel Diplomatic Network. Embassy of the State of Israel <http://nairobi.gov.il/mfm/web/main> pg. 1

⁶⁷ Ibid

to highlight where they are situated, what crops they grow and to what extent they have been successful.⁶⁸ The study will also highlight in brief what is the role of the bodies and institutions that run irrigation schemes, and some of the challenges that they could be facing in executing their roles.⁶⁹ This discussion of past irrigation schemes will be a lead to the main subject matter of this work which is the Galana Kulalu Irrigation scheme.

This national food security project is the most recent cooperation that the government of Kenya has entered with the Israeli government to combat the hunger menace. The study provides an in-depth analysis of the status of the Galana Kulalu project, the opportunities and also the challenges there in. In collecting data for the purposes of this study, a number of challenges were encountered. These should be considered while reading the findings of this study. Availability of some of the respondents was a challenge especially from the Israeli Embassy. Where they were unavailable, telephone interviews were conducted.

The challenge of establishing rapport with the resource persons was also there. This challenge was dealt with by stating that the information being collected was strictly for academic purposes. Availing proper permits was also a helpful solution to this challenge. Financial challenges and time constraints were also a challenge while conducting this study. Finally, the literature of this study, though available, was scattered in various publications hence the process of consolidating them to make a constructive read was not an easy one.

Despite the challenges, the findings of this study address the research problem adequately because the respondents involved were drawn from various sectors. This helped deal with any biases that could have occurred. In addition, the methods of data collection, that is interviews(semi-

⁶⁸ www.nib.or.ke

⁶⁹ www.nib.or.ke

structured), desk research, triangulation and snowballing complemented each other and made it possible for the study to address fully the research problem, which helped counteract the limitations that come with each of the approaches, and hence allow for an in depth analysis of the Galana-Kulalu National food security project.

1.10 Outline of the Study

This study is divided into six chapters; Chapter one is the introductory part of the study that discusses the background of the study, gives an overview of the issue of food security globally and in Kenya, and also states the problem statement, which is the backbone of this study. Hypotheses are also stated in this chapter. It discusses the academic and policy justifications for conducting this study. The chapter also reviews literature and winds up with explaining the research methodology that was used for the study.

The second chapter discusses the growth and development of the Israel–Kenya cooperation. It also seeks to assess how the cooperation has grown over time, since independence times. It also makes mention of their relations before Kenya gained her independence. Though this chapter highlights other co-operations in other fields like trade, it mainly discusses agricultural relations. Chapter three assesses the performance of the previous irrigation schemes in Kenya. It also seeks to understand the role of the bodies that govern Irrigation schemes, with specific interest in the National Irrigation Board (N.I.B).

Chapter four sought an in-depth understanding of the status of the National Food security project. The chapter acknowledges the importance of the community involvement in order for such a mega national food security project to succeed. Chapter five: The chapter sought an in-depth understanding of the prospects, opportunities, and the challenges that the planners could be

experiencing in conducting the Galana Kulalu project. Chapter six: Conclusions, Summary and Recommendations - This chapter summarizes the findings from all the above chapters, and come up with recommendations.

Chapter Two

The Growth and Development of the Relations between Kenya and Israel since

Independence

Introduction

This chapter looks at how Kenya's relations with the state of Israel have evolved since the country's independence. However, pre-independence reference will be made in as far as relates to the research problem. Pre-independence, Kenya's foreign policy was determined by the British who colonized the country.⁷⁰ It was not until independence that Kenya was free to decide which countries she wanted to establish international relations with. Though this study mainly focuses on the agricultural relations of the two countries, there will be discussions of other sectors of their relations.

2.1 Brief Background Information on Kenya

The country Kenya is named after its highest mountain - Mount Kenya. The name Kenya is derived from a Kamba name "Kii nya", which means a mountain with streaks of snow.⁷¹ Kenya became a British protectorate in 1895. The construction of the Kenya- Uganda railway using British government funds gave the area (which later became the republic of Kenya) political visibility.⁷² The railway that reached its planned destination in the shores of Lake Victoria in 1902, gave rise to several towns and settlements along its way, especially of the Asian community that was largely involved in its construction.

⁷⁰Okoth P.G (1999), 'Historiography of Kenya's Foreign Policy ' African Review Journal of Foreign Policy, Volume 1. p. 16

⁷¹Hazlewood A.(1979), The Economy of Kenya, the Kenyatta Era(New York: Oxford University Press) p.11 in Leonard Maumo " Kenya's Foreign Policy Towards Israel(1963-2002)", Masters Thesis, Department of Political Science, University of Nairobi, 2009, p. 2

⁷²Ibid

The country was declared a British colony in 1920.⁷³ Kenya emerged from colonial rule in 1963, and assumed a Republican form of government under President Jomo Kenyatta in 1964, inheriting a highly heterogeneous population of forty two tribes. ⁷⁴The size of Kenya is approximately 582,646 Kilometers square.⁷⁵ Kenya lies on the equator between the Indian Ocean and Lake Victoria.

Kenya's port which is situated in the second largest city of Mombasa gives Kenya a vantage point in terms of external trade. Landlocked countries in the region like Uganda rely on Kenya's port for import of their goods. During the colonial period, the port made Kenya the center of economic and governmental activities common to the whole of British East Africa.⁷⁶ As a result, Kenya became the most industrialized state in the region. Kenya was admitted to membership in the United Nations on December 16th 1963, which enabled her to gain more International recognition.⁷⁷

Norman Leys describes Kenya as a country with little land that is fit for farming. He states that only the narrow coastal strip, the island of mountains and plateau, and the small plain lying between the highlands and Lake Victoria Nyanza are arable. The climatic conditions in some parts of Kenya may be likened to that of Arabia as they receive the same amount of rainfall. Out of 240,000 miles in Kenya, most of the land is desert.⁷⁸

⁷³ Ibid

⁷⁴ Ogot B.A (1995) Decolonization and Independence in Kenya 1940-93 (Eastern Africa Studies). Ohio University Press p.10

⁷⁵ Central Bureau of Statistics, Ministry of Planning and National Development, Kenya Facts and figures, 2005 Edition p.3

⁷⁶ Kaplan I. et al (1967), Area Handbook for Kenya. p. 359.

⁷⁷ Maumo L. Thesis, Op Cit. p. 3

⁷⁸ Norman L. (1973) , "Kenya" Frank Cass and Company Limited, London: p. 82

2.2 Brief Background Information on Israel

The Balfour declaration, which is named after British foreign secretary Arthur James Balfour, was the first official expression of intent to establish a Jewish homeland in Palestine. This was after the ancient (Biblical) Israeli land, had been conquered and destroyed by the Assyrians and Babylonians in 722B.C and 568B.C respectively.⁷⁹ The next many centuries saw modern day Israel ruled by various groups among them; Persians, Greeks, Arabs, Seljuk Turks, Egyptians, Islamists among others. Jews had become scattered in various parts of the world.

However in the late 19th and 20th Century, there emerged a movement known as Zionism among Jews.⁸⁰ This nationalistic religious and political movement wanted a homeland established for them in Palestine. Adolf Hitler's policy of extermination of Jews in Europe during the Second World War further heightened the need of establishing a Jewish state. The well-coordinated Nazi genocide overseen by Hitler's Nazi regime saw six million Jews killed all over Europe in the period between 1938 and 1945.

In 1947, a United Nations Special Commission made a decision to divide Palestine into two states; One Arab and the other Jewish. The partition plan stated that 56% of Palestine belonged to the Jews while 43% belonged to the Arabs. The Arabs did not agree with the decision.⁸¹ Israel gained Independence on May 14th 1948, when the last British soldier left the country.⁸² The Jewish state joined the family of nations on 12th May 1949 when its flag was hoisted outside the United Nations headquarters.

⁷⁹ Sumner W. (1948) 'We need not fail'. The Riverside Press Cambridge. pp 44-45

⁸⁰ Spencer W.(1996) "Global Studies; The Middle East" 6th Ed. Dushkin publishing Group p.78

⁸¹ Spencer W. Op Cit. p. 79

⁸² Ibid

Israel is geographically in the Middle East but not entirely. Sometimes it is regarded as part of Europe, Asia or indeed of neither.⁸³ In June 1967, Israel conquered Jordan, Egypt and Syria in what came to be known as the six-day war, where they occupied the Golan heights that belonged to Syria, the Gaza strip that belonged to Egypt, the West Bank that belonged to Jordan and East Jerusalem.⁸⁴ The problem of not being able to define the exact size and boundaries of the small Jewish state can be attributed to this victory.

Despite the anti-semitism (prejudice against, or hatred of Jews)⁸⁵ that has faced the Jewish people, they are still making a great impact all over the world. According to a 2015 Forbes report, out of the top fifty billionaires in the world, ten are Jews.⁸⁶ The wealthiest Jew in the world and also the fifth wealthiest person alive is seventy year old Larry Ellison. He is the founder of the tech giant Oracle Corporation. His net worth is 54.2 billion U.S dollars.⁸⁷ Former New York mayor Michael Bloomberg was listed the second wealthiest Jew, and the fourteenth wealthiest person overall, at a net worth of 35.5 billion U.S dollars.⁸⁸

Mark Zuckerberg, founder of Facebook, another Jew made it to position sixteen overall with his net worth having grown to 33.4 U.S dollars. As at 2015, he was aged 30 years, making him one of the youngest billionaires in the world.⁸⁹ Another example of Jews making an impact in the world today is Google co-founders Sergey Brin and Larry Page, who also made it to the list of the top fifty richest people in the world, at a net worth of 29.2 U.S dollars and 29.7 U.S dollars respectively.

⁸³ Asher, Arian (1980) *Israel; A Developing Society* Ed. Assen: Vn Goreum Publishers. p.35

⁸⁴ Ibid

⁸⁵ www.merriamwebsterdictionary.com/dictionary. 3/8/2018

⁸⁶ Gabe F. (3/3/2015) 10 Jews in Forbes Top 50 Billionaires retrieved from www.times of Israel.com on 20/7/2018

⁸⁷ Ibid

⁸⁸ Ibid

⁸⁹ Ibid

2.3 The Evolution and Development of International Relations between Kenya and Israel

Kenya's first president Mzee Jomo Kenyatta introduces his book 'Facing Mt. Kenya' by stating that Kenya should emulate the example of Israel and live together in unity.⁹⁰ He continues to say that Kenyans have a lot to learn from the Jewish state.⁹¹ Waruhiu Itote in a separate publication also indicated that the relations between and Israel were beneficial to Kenya.⁹² The Israeli government started the joint ventures with African countries in the fifties.⁹³ This ventures were meant to transfer technological know-how as a way of safeguarding their interests in Africa.⁹⁴

The relationship between the two countries is unique because cooperation extends to different areas not just one, as is usually the case with other countries. Prime Minister Benjamin Netanyahu's visits to the continent of Africa (not just Kenya), also have another agenda; to look for the precious U.N votes.⁹⁵

Africa has over fifty countries, and they all vote in international forums, hence they can change the automatic majorities in the U.N⁹⁶ One of the benefits that Israel has gained since renewing ties officially with Kenya on December 23rd 1988⁹⁷, was that there was a shift in attitude towards the infamous U.N General Assembly 'zionism is racism' resolution of 1975.⁹⁸ In 1991, the change in voting patterns was noticed.

Even in Uganda and Tanzania who had not yet restored diplomatic ties changed from their previous hostile stances to that of abstention. Israel's return to Africa is seen as part of a global

⁹⁰ Kenyatta J. Facing Mount Kenya. Op Cit.

⁹¹ Ibid

⁹² Waruhiu I., (1967) Mau Mau General. East African publishing House, Nairobi. P. 240

⁹³ Mordecai E. K. (1964), Israel and Africa. A study in technical cooperation: Fredrick A Praeger, New York p. 137

⁹⁴ Ibid

⁹⁵ George I. (1980) The Middle East in World Affairs, 4th Edition. Cornell University Press. p.431

⁹⁶ Ibid

⁹⁷ Stephen S. C. (2012) 'From Jerusalem to the lion of Judah and beyond: Israel's foreign policy in East Africa.' iuniverse Inc. New York Bloomington. p.389

⁹⁸ Ibid

Israeli survival strategy. Arab states have been mobilizing support of blocs within the U.N to pass resolutions condemning Israel policies. European countries have also been increasingly blaming Mr. Netanyahu for the impasse in the peace process with the Palestinians. Hence Israel making friends with Africans is completely essential.⁹⁹

2.4 Trade Relations between Kenya and Israel

Trade relations between Israel and Kenya began in 1953, while Kenya was still under colonial rule.¹⁰⁰ For ease in trade, Israel maintained a consulate general in Kenya: One example of the trade relations is the 15th February 1958 shipment of animals from Mombasa to Eliat for the Tel Aviv zoo.¹⁰¹ In 1957, a navigation company called Zim Israel began chartered services from Eliat to eastern Africa through the port of Mombasa. The vessels would bring goods like cement and potash and take back to Israel seeds, beans, coffee, tinned meat and hides and skins.¹⁰²

Israel's exports globally were handled by the government sponsored Israel export and trust cooperation that was established in 1958.¹⁰³ In East Africa, including Kenya, Amiran was established to deal with Israel's export to the region. Today, the company has officials in Kenya, Ethiopia and Tanzania.¹⁰⁴ The balance of trade was however skewed in favor of Israel, as they exported commodities that could be divided into three categories.¹⁰⁵ The first included building materials like tiles, carbide, cement, plywood, safety glass, sun heaters, paints, locks and screws.¹⁰⁶

⁹⁹ Ibid, p.390

¹⁰⁰ Stephen S. C. "Israel's foreign policy towards East Africa," PhD Thesis. Department of History, St. John's University, New York, 1977, p. 41

¹⁰¹ Ibid

¹⁰² 'Zim serves Africa' The Israel export and trade journal (Tel Aviv. July 1963)pp 15-25

¹⁰³ Stephen S. C. op. cit p. 142

¹⁰⁴ Ibid

¹⁰⁵ 'Israel products adapted to East African market,' Israel export and trade journals (Tel Aviv: July 1967)

¹⁰⁶ Ibid

The second class of items was made up of irrigation equipment like steel pipes, chemicals, fertilizers and other agricultural equipment. The last category consisted of equipment like air conditioners, motor vehicle spare parts, tires, cotton clothing pharmaceuticals as well as jewelry¹⁰⁷. Kenya on the other hand exported mainly primary products like to Israel like dairy products, beef, skin and hides.¹⁰⁸ In 2013, the Israel export institute released figures that showed that trade between the two countries reached 139 million U.S dollars, accounting for eight percent of Israel's trade with Africa.¹⁰⁹

Presently in Kenya, there are about fifty companies that are owned by Israelis or represent Israeli firms.¹¹⁰ In June 2008, it was announced that Israel and Kenya would restore direct flights from Nairobi and Mombasa to Tel Aviv. The flights had been earlier suspended following a 2002 abortive missile attack on an Israeli chartered flight in Mombasa.¹¹¹ This was to enable people to do business with much ease between the two countries.¹¹²

2.5 Visits and Trainings

In 1958, a group of Kenyans visited Israel to study about good agricultural practices and mechanical engineering.¹¹³ On 18th August 1961, Israeli foreign minister Golda Meir congratulated Jomo Kenyatta on his release from detention, where he had been detained by the British colonial masters¹¹⁴ Two days later Jomo Kenyatta accepted Golda Meir's invitation to visit Israel.¹¹⁵ Delegations to discuss technical cooperation between the two countries started as early

¹⁰⁷ Benjamin B.H. (1988), *The Israeli connection. Who Israel arms and why?* I.B Tauris, London.p.16

¹⁰⁸ Ibid

¹⁰⁹ Friedmann G.(2013) Israel trades with Africa retrieved from www.foxnews.com on 20/8/2018

¹¹⁰ Ibid

¹¹¹ Stephen S. C. (2012) op cit. p. 390

¹¹² Trademark East Africa, July 25th 2014.p.4

¹¹³ Israel Diplomatic Network. Embassy of the state of Israel. <http://nairobi.mfa.gov.il/mfa.gov/k/mfm/web/main> p 1 accessed 23rd Sep 2017

¹¹⁴ Asher, N. (1961) Kenyan leader released from detention in *Jerusalem post of 20th August* p.6

¹¹⁵ Golda M. (1975) 'My Life' The autobiography of Golda Meir. Futura Publication Limited, London. p.277

as 1961, led by then minister for commerce and industry in Israel Pinhas Sapir.¹¹⁶ In the same year 1961, the director of the mixed farming department at the Ministry of Agriculture visited Israel in June for ten days.¹¹⁷

In 1962, dignitaries like Mr. and Mrs. Tom Mboya and Waruhiu Itote (General China) - a Mau Mau leader underwent training in Israel. He secretly left Kenya to Israel without a passport to study in Israel in November 1962.¹¹⁸ While in Israel, Waruhiu lived in kibbutz Kfar Hannasi in the upper Galilee and studied at the military officers training school in Tel Aviv¹¹⁹. On 10th January 1963, seventy- five East Africans from Tanzania, Uganda and Kenya followed Waruhiu secretly to go and train as army officers and pilots in Israel.

It was not until after Kenya's independence in 1963 that president Kenyatta revealed that the first Kenyan pilots had been secretly trained in Israel. A total of thirty Kenya Army officers and five pilots were trained.¹²⁰ Training of Kenyans in Israel in Agriculture and Mechanical Engineering started in 1958. By 1961, almost six hundred Kenyans had studied in Israel.¹²¹

Official diplomatic relations were however established immediately after Kenya gained independence in December 1963. Although the two countries experienced good working conditions since then, their relations became strained during the Yom Kippur war. The attack happened on 6th October 1973 and coincided with the day of atonement (Yom Kippur), hence the name.¹²²

¹¹⁶ Asher N.(1961) Israel's International Cooperation in *Jerusalem Post* of October 16th p.3

¹¹⁷ Ibid

¹¹⁸ Iris R.(1966) Training and Technical Assistance Agreement... Proof of Kenya -Israel friendship Ma' aviv (Tel Aviv)

¹¹⁹ Ibid

¹²⁰ Bel M.J.V (1964), Military assistance to Independent African states (London: The Institute for strategic Studies, Adelphi, paper 15) p. 3

¹²¹ Israel Diplomatic Network, Embassy of the State of Israel, <http://Nairobi.mfa.gov.il/mfa/web/main> p.1 accessed on 25th April 2017

¹²² Trueman C.N (2015) 'The Yom Kippur War of 1973' retrieved from www.historylearningsite.co.uk on 23/4/17

During the attack, several Arab countries launched an attack against Israel.¹²³ Egypt and Syria sent forces that totaled to the same number of men that NATO (North Atlantic Treaty Organization) had in Western Europe. Other countries who joined in the war were Tunisia, Sudan and Morocco. Others like Saudi Arabia, Kuwait, Jordan and Libya effectively funded the war.¹²⁴ This war was a do or die for Israel. If she had lost, then the nation of Israel would have ceased to exist. Out of Israel's total land mass of about 20,770 square kilometres, 92% or 18,643 square kilometers are being claimed by Palestinians.¹²⁵

The war proved Israel's military ability because, although she had been caught by surprise by the countries, Israel managed to survive the attack by pushing away the attackers in just three days. Israeli military conquered the invaders even before military aid could arrive from America.¹²⁶ As a result of this war, twenty five sub-African countries, Kenya included, broke ties with Israel. This war had been seen by the Organization of African Unity (O.A.U) as a fight against "Imperialism".¹²⁷

Israel did not hold any grudge against African countries because they understood that the OAU bowed down to pressure from the Arab League, and that the African countries only bowed down reluctantly because they did not have a voice in the international context of the period.¹²⁸ The reasoning of the Arab League was that, by crossing the Suez Canal, Israel had occupied African land, hence the breaking of ties with Israel was seen as a fight against imperialism.

¹²³ Ibid

¹²⁴ Draper T. (1983) *Israel and the Middle East*. The H.W Wilson Company, New York p.20

¹²⁵ Nadar S. (1979) *Israel, The embattled Ally*. Harvard University Press, U.S.A p.184

¹²⁶ Howard M. S. (1987) *A history of Israel; From the Aftermath of the Yom Kippur War Volume 2*. Oxford University Press. New York p.176

¹²⁷ Ibid

¹²⁸ George L.(1980), *Op Cit*. p. 400

Diplomatic relations started being renewed between Israel and most African countries in the eighties¹²⁹.

Official diplomatic relations between and Israel and Kenya were renewed on 23rd December 1988.¹³⁰ Countries like Kenya that had renewed their ties earlier than the rest were seen as being brave for defying the OAU order.¹³¹ Even though there was no official diplomatic engagement, Israel throughout maintained an ‘interests section’ in Nairobi in the Netherlands Embassy.

Israel’s technicians assisted in the reclamation of some five thousand acres of desert land in the Northwestern Part of Kenya.¹³² Kenyans received medical training where they acquired Masters of Public health degrees from the Hebrew University- Hadassah Medical School in Jerusalem.¹³³ Kenyan women also continued to train at the Afro-Asian institute in Tel Aviv.¹³⁴ Kenya had however remained secretly allied to Israel. This secret alliance is seen in the secret role Kenya played in the Entebbe raid of 1976¹³⁵ as described below:

2.6 Kenya’s Role in the Entebbe Raid

In July 1976, some terrorists from Germany and Palestine hijacked a plane owned by Air France. They diverted it to Libya for fueling and later to Entebbe in Uganda. One hundred and six

¹²⁹ Ibid

¹³⁰ Stephen S. C.(2012), Op Cit. p 340

¹³¹ Ibid

¹³² ‘Kenyan leader predicts his government will renew relations with Israel soon.’ Media project black- Jewish information center, New York march 13 1980 p.1

¹³³ ‘Third world health personnel complete training in Israel.’ Media project black-Jewish information center, New York march 30 1981 p.5

¹³⁴ Israel’s Afro-Asian institute hears address by Na’amat leader,’ media project black-Jewish information center , New York, July 19, 1982. p.9

¹³⁵ [mfa.gov.il/MFA/ Foreign Policy/Issues/Pages/Behind the Headlines-History-Israel-Africa-relations.aspx](http://mfa.gov.il/MFA/Foreign_Policy/Issues/Pages/Behind_the_Headlines-History-Israel-Africa-relations.aspx) retrieved 20th September 2017

Jewish passengers were held hostage while they freed the non- Jews. ¹³⁶In an interview with the times of Israel in April 2017, the Director of the African Center for Security and strategic Studies Mr. Simiyu Werunga said that ‘the operation would not have been a success without Kenya’s collaboration’.¹³⁷

The operation had to be kept top secret because Kenya’s aid to Israel would have been seen as a betrayal to the region. First, for collaborating with a country that had been blacklisted by the OAU, secondly because the then Ugandan president Idi Amin (who collaborated with the terrorists in the attack), was the chair of the OAU.¹³⁸ Kenya allowed the Israeli planes to refuel at the airport. The Jomo Kenyatta International airport was turned into a first aid area as the injured hostages were given first aid before being flown back home in Israel. The Entebbe raid was a success.

Among those who lost their lives in the daring raid was the commander of the mission Yonathan (Yoni) Netanyahu who is the current Prime Minister’s (Benjamin Netanyahu) elder brother.¹³⁹ The fortieth commemoration of the raid in 2016 saw Benjamin Netanyahu visit Uganda to pay tribute to his brother. During the same visit, he visited Kenya, making him the first sitting Israeli Prime minister to visit Kenya¹⁴⁰

2.7 Israel and Kenya Agricultural Relations

Technology is no doubt a key factor in enabling Israel to provide foreign aid. Israel has competitive advantage over other countries in the area of technology, particularly agricultural

¹³⁶Saul D. (2015) “Operation Thunderbolt: Flight 139 and the raid in Entebbe airport, The twentieth Century greatest special forces mission.” Little, brown and Company. p. 60

¹³⁷ Decalo S.(2017) Kenya’s Role in the Entebbe Raid in *Times of Israel Magazine* of 12/4/17 p.5

¹³⁸Saul D. (2015) Operation Thunderbolt, Op Cit.

¹³⁹ Ibid

¹⁴⁰Toi S. (28/11/2017) Netanyahu Arrives in Kenya to meet 11 African leaders retrieved from [www.times of Israel.com](http://www.timesofisrael.com). retrieved on 11th August 2018 p.6

technology.¹⁴¹ Most of Israel's Official Development Assistance (ODA) is based on technical assistance which involves Israel sharing its accumulated expertise through offering consultancy services as well as training those interested in Israel and also in countries that they are in partnership with.¹⁴² In Kenya, Green Arava, the company that is conducting the National Food Security provides capacity training and technical advice to the Kenyan team.

In Israel, the Negev desert comprises of about fifty percent of Israel's total land mass.¹⁴³ However through drip irrigation the country has managed to turn the desert into arable land. This irrigation technique was developed by Sholmo Blass. It ensures that plants receive steady drops of water in their roots. The water usually comes from a nearby reservoir. The yields from this technique are higher than any other method of irrigation.¹⁴⁴ The history of the agricultural relations between Kenya and Israel date back to Kenya's pre-independence period.

This saw the first group of Kenyan trainees arrive in Israel in the early sixties.¹⁴⁵ The trainings are conducted through MASHAV¹⁴⁶, an agency that has been active since the early 1950s. In June 2017, One hundred and two Kenyan agriculture students returned to Kenya from an eleven month agricultural training course in Israel. Another group of one hundred and twenty students travelled to Israel in July 2017 for the same course.¹⁴⁷ Israel's areas of expertise are; water recycling, water management, irrigation, agriculture in arid environments, soil erosion, salinization mitigation and adaptation to climate change and afforestation.

¹⁴¹Gordon S. (March 6 2018) How Israel is Redifining Foreign aid for the 21st Century. Retrieved from <https://Jewish Studies. Washington.edu/Israel-hebrew/Israel-redefining-foreign aid-21st-Century>, on 1st April 2018.

¹⁴² Mfa.gov.il/MFA/ International Orgs/Pages/Israel-hels-arid-countries-combat-desertification.aspx

¹⁴³ Alain G. and Dominique V. (1987) Op cit.

¹⁴⁴ <https://Jewish Studies. Washington.edu/Israel-hebrew/Israel-redefining-foreign aid-21st-Century>. retrieved 1st April 2018

¹⁴⁵ Golda M. (1975), Op Cit.

¹⁴⁶ MASHAV is a Hebrew acronym for Israel Agency for International Development Cooperation

¹⁴⁷ www.mfa.gov.il/mfa/mashav retrieved 12th September 2017

Israel also has a lot of hands-on experience in coping with dryland conditions¹⁴⁸. It is this experience that enables Israel to help other countries to achieve food security. This same expertise has seen the United Nations arm that deals with desertification UNCCD (United Nations Convention for Combating Desertification) seek to engage Israel in their course.¹⁴⁹ As a signatory to the UNCCD, Israel trains affected countries in Africa, Central Asia and Latin America, on how to use the same techniques that have helped Israel make the ‘desert bloom’¹⁵⁰

Kenya and Israel have similar histories, whereby they were both British colonies. Also, both countries experience semi-Arid climate, hence enabling agricultural exchange of knowledge. One of the most known projects that is run by the two governments is the Kibwezi Irrigation Scheme, which involved fruits growing.¹⁵¹ The large scale irrigation scheme was also done in collaboration with USAID.

After ten years of intensive farming, the area had been turned in to a self-sustaining area, from the drought prone area that it initially was.¹⁵²The Israeli government (through the Israeli Ambassador to Kenya, Gil Haskel) relaunched the project in 2012, which saw over four hundred acres of land being irrigated. During his visit, the Ambassador could not hide his disbelief that water from River Athi would just flow to the Indian Ocean, while just kilometers away, plants just withered away.¹⁵³

¹⁴⁸ Dixon A. John, et al, Dry Land Management : Economic Case Studies(London: Earth Scan Publication Limited 1990) p. 50

¹⁴⁹ <https://www.unccd.int/convention/about-convention/our-partners> retrieved 12/9/18

¹⁵⁰ Ibid

¹⁵¹ Golda M. (1975) Op Cit.

¹⁵² Ibid

¹⁵³ Makau M. (2012) Kibwezi scheme revived in *The Standard Newspaper* of 10/9/12 p.10

2.8 Security Relations

In the last about one decade, security ties between Kenya and Israel have been strengthened as they face a common struggle against Islamic terrorism. Kenya is constantly dealing with the terror menace from Al-Shabaab militants, while Israel is faced with terror threats from jihadists in the Sinai. The connection of blood between the two countries has only worked to further strengthen ties between them.¹⁵⁴

2.8.1 Idi Amin's Threat to Annexe Kenya

During the diplomatic rapture between Israel and African countries in the seventies, president Kenyatta and a section of his ministers continued to relate with Israel (even though the embassy in Nairobi's lower hill was closed), against the OAU's decision to cut all diplomatic relations with Israel.¹⁵⁵ In public, Kenya criticized Israel, but Jomo Kenyatta had a cordial relationship with Mrs. Golda Meir, Israel's fourth prime minister. Kenya had hoped that by 'severing' ties with Israel, and further public criticism of Israel, it would gain some economic support from the Arabs, but it did not work as Kenya became a target of its extremists in the Norfolk attack.¹⁵⁶ The leader of Palestinian Liberation Organization (P.L.O) had even been allowed to operate a secret office in Nairobi in 1974.¹⁵⁷

In 1975, President Idi Amin from neighboring Uganda threatened to annex Kenya's territory up to Naivasha, which was formerly part of Uganda. Uganda was armed to the tooth and that worried President Kenyatta, seeing that Kenya's Air force jets were old, hence they could not match Amin's. In October the same year, foreign minister Munyua Waiyaki wrote a letter in secret

¹⁵⁴ Saul D. (2015) Op Cit. p.16

¹⁵⁵ Stephen S. C. Op. Cit. p. 143

¹⁵⁶ Kiruga M. (2013) 20 killed in bomb attack at The Norfolk, in *Daily Nation* of 15/9/13 p.10

¹⁵⁷ Ibid

to his Israeli counterpart Yigal Allon seeking his aid in convincing the U.S to sell combat jets to Kenya, so that the country could be ready to counter an attack from Amin if it occurred.¹⁵⁸

Waiyaki turned to the Jewish state, which is also a great ally to the United States. Earlier on, Israel had taken several Kenyan intelligence officers through intensive training.¹⁵⁹ It is when Kenya realized that Arab nations would not stand with her amidst the hostilities by Amin and neighbouring Somalia that she turned to Israel for assistance in persuading the U.S. The U.S agreed to sell ten F-5Es to Kenya. Kenya ended up acquiring them at a cost of sixty million US dollars. Kenyatta said that it was important for their neighbours to see them parked in Kenya's airfields.¹⁶⁰

As the negotiations were ongoing, the 1976 Entebbe raid worked to show the U.S that Amin was a real threat in the region, and the Americans also got a chance to play geopolitics. To intimidate Amin, U.S secretary of state at the time Henry Kissinger consented to the idea of sending an aircraft to survey Uganda. In a letter, he told Kenyatta that if sending the aircraft would work to 'scare' away their neighbors, then they were willing to offer that kind of help.¹⁶¹

When asked by the U.S' ambassador to Kenya whether he thought that Amin could be so angry with Kenya for cooperating with Israel, so as to want to harm Kenya, president Kenyatta said that he was convinced that was the case. Hence he requested the US to raise the matter in the U.N. By this time, they had come to be endeared to Kenyatta due to the role that he played in subduing Idi Amin during the Entebbe raid.¹⁶²

A letter written on July 3rd 1976 to Kenyatta stated that henceforth, the US was ready to offer any form of assistance that Kenya might be in need of. In the letter also, the U.S registered

¹⁵⁸ Ibid

¹⁵⁹ Abel J. (1971) "Israel's Military Aid to Africa." The journal of Modern African Studies. p. 20

¹⁶⁰ Bamaturaki M. (2011) The Day Idi Amin Wanted to Annexe Western Kenya, in The East African of 10/9/11 p.17

¹⁶¹ Maria M. (16/3/17) When Idi Amin Threatened to Annexe Kenya. Retrieved from www.kenyatalk.com on 21/7/18

¹⁶² Laura E. (2013) The Entebbe Raid. Retrieved from <https://www.britannica.com/event/Entebbe-raid> on 21/7/18

its joy following the successful operation at Entebbe airport earlier in the week. On July 9th 1976, Kissinger wrote another letter to Kenyatta telling him of the deployment of an aircraft in Nairobi, and a warship that would arrive in Mombasa on July 12th and be docked there for three days.

Also to further scare Amin, the U.S agreed to fly the newly acquired aircrafts during the Jamhuri Day celebrations on 12th December 1976. This was meant to be a show of might. Eventually Amin's threat to annexe Kenya up to Naivasha did not materialize. Even though, Israel did not play the direct role of arming Kenya during the threat, the country played the important role of mobilizing for military support for Kenya from the United States of America, showing friendship between the two countries.

2.8.2 Norfolk Hotel Bombing

The attack happened on New Year's eve, 31st December 1980. The hotel was opened on Christmas day in 1904, and bought in 1927 by Abraham Block, an Israeli national. At the time of the attack, the hotel was being run by his two sons. It came to be known later that the bomber was a Moroccan with Palestinian ties, and had worked for the Liberation of Palestine. His 'real' names were Qaddura Mohammed Abd-el-Hamid.¹⁶³

He had booked the room directly above the bar to stay during the last week of 1980, but left secretly on the afternoon of December 31st. By the time the bomb exploded, he was already aboard a plane to Saudi Arabia. The only known thing about him was that he was a member of PFLP.¹⁶⁴ The fact that operations of the hotel resumed immediately, shows the strong relationship between Kenya and Israel.

¹⁶³Kiruga M. (2013) 20 Killed in Bomb Attack on Norfolk in *Daily Nation of 15/9/13* p.10

¹⁶⁴ Ibid

2.8.3 US Embassy Bombing in Nairobi

The bomb blast happened at 10.40 am on Friday 7th August 1998.¹⁶⁵ Minutes later, another explosion followed in Dar es Salaam. Both attacks killed a total of about two hundred and twenty four people and injured another five thousand. The date coincided with the eighth anniversary since the U.S troops were deployed to Saudi Arabia.¹⁶⁶ In Nairobi, a truck loaded with two thousand pounds of TNT (TrinitroToluene), a highly explosive chemical forced its way through the back entrance of the embassy and was detonated.¹⁶⁷

A total of two hundred and thirteen people died including twelve Americans. Hundreds more were either blinded or maimed.¹⁶⁸ The death toll in Tanzania was lower (with eleven deaths and eighty five injuries) because the embassy was located outside the city. The Osama Bin Laden led Al Qaeda terrorist group claimed responsibility. Back in Nairobi, the Kenya Railways headquarters was also extensively damaged. Many buildings that were about a kilometer away had their windows shattered. Some of those injured in the blast were the then American Ambassador to Kenya Prudence Bushnell and the then minister of Trade Joseph Kamotho.¹⁶⁹

The initial rescue efforts were conducted by members of the public, the Kenya Army, the Kenya police and St. John's ambulance.¹⁷⁰ The Israeli rescue team arrived on Saturday August 8th 1998. Israeli companies based in Kenya supplied heavy equipment. Rescue operations were conducted by military teams from Israel and the U.S.A. Other countries like Britain, Canada, France and South Africa also offered their support in different ways.

¹⁶⁵ Gitonga M. (1998) U.S Embassy Bomb Attack in *East African standard of 8/8/98* p.2

¹⁶⁶ Ibid

¹⁶⁷ <https://edition.cnn.com/2013/10/06/world/africa/africa-embassy-bombings-fast-facts/index.html>.retrieved on 30/7/18

¹⁶⁸ Ibid

¹⁶⁹ Gitonga M. (1998,8th August), Op Cit.

¹⁷⁰ Ibid p.3

The Americans allowed the Israelis to lead the operation. They were seen as more focused and less biased than their American counterparts.¹⁷¹ The issuing of travel advisories to Kenya by the U.S government further contributed to the negative perception of Kenyans to the Americans. Though the advisory was later lifted, the damage had already been done.¹⁷² While the act negatively affected Kenya's attitude towards the U.S, it strengthened the bonds towards Israel.

Every one appreciated Israel's efforts in the rescue mission. Even though Israel was at the center of the problem, the country could not be blamed. Other Kenyans said that they would like to see more aid come from the Islamic countries, because the attackers were viewed to have used Islamic slogans to shed innocent blood. Those who drove the bomb to the embassy were for instance said to be 'Arab looking men.'¹⁷³ Targeting the U.S embassy was most probably because of the U.S policy in the Middle East to support Israel at the expense of the Arabs in Palestine.

Jamia mosque Imam Sheikh Abdi Nassir seemed to confirm this line of thought when he said that individuals with personal grudges against the U.S.A and Israel should not use Islam to terrorize mankind.¹⁷⁴ In bidding the rescue team, president Moi stated that the support showed that indeed Israel was a true friend to Kenya. He also thanked Prime Minister Netanyahu for the speedy response by the government of Israel. The terrorism act did little to damage the relations between Kenya and Israel. Instead, it gave an opportunity for Kenya to express its posture towards Israel.¹⁷⁵

2.8.4 Kikambala Paradise Hotel Bombing

On 28th November 2002, at exactly 8.15 am, three suicide bombers rammed their Pajero through a security barrier at the hotel. Almost immediately, a light aircraft dropped small bombs

¹⁷¹ Gay R. Op Cit.

¹⁷² Ibid

¹⁷³<https://www.deseretnews.com/top/1875/1/Bombing-in-Nairobi-Kenya-Photo-gallery-1998-United-States-embassy-bombings.html>

¹⁷⁴ Gitonga M. (1998) U.S Embassy Bombing in *The East African Standard of 11th August*. p.1

¹⁷⁵ Ibid p.3

on the hotel flattening it completely. Almost simultaneously, missiles were fired at an Israeli Charter plane, but missed. The plane had just taken off from the Mombasa airport. The hotel which was only two years old at the time belonged to an Israeli businessman Mr. Itzhak Mamam. A total of twelve people died in the attack; nine Kenyan workers and three Israelis.

A group called the Army of Palestine believed to be a part of Al Qaeda claimed to have carried out the attack. Though the attack was aimed at focusing attention to the Israeli Palestinian conflict, it worked only to unite Kenya and Israel further. The Kenyan government through the Vice President issued a message of solidarity with Israel saying that, “The government would like to clarify that this was a terrorist act, focusing on Israeli businesses’’.¹⁷⁶ When President Moi heard of the attack, he treated the hotel as though it was Kenyan.

While in Uganda he expressed his displeasure against those conducting such acts on Kenyan hotels. He further stated that Kenya would fight the terrorists as their actions were against what the people of East Africa stand for. As a result of the terrorist attacks, MASHAV stepped up its training efforts in the area of medicine. Medical personnel were trained on disaster management and emergency medicine. The Kikambala hotel attack strengthened co-operative efforts in the field of security and particularly on preventing terrorism. During his visit to Kenya in 2016, Israeli Premier Benjamin Netanyahu emphasized Israel’s commitment in helping Kenya to deal with terrorism, especially the Al-Shabaab terrorist group.

2.8.5 The 2006 Collapsed Building in Nairobi

On the afternoon of Monday 23rd January 2006, a four-storey building that was being constructed along Nairobi’s Ronald Ngala Street came tumbling down, burying construction

¹⁷⁶ Ibid p.4

workers and others in the rubble.¹⁷⁷ At the time of the collapse, more than two hundred and eighty workers were in the structure. Some of them were reported to have been taking a nap after their lunch break, while those at the top floor managed to jump over to the next building.

Members of the public and the police were the first to arrive at the scene, followed by the redcross Kenya team.¹⁷⁸ St. John's team also came in with their ambulances to help take the survivors to Kenyatta National Hospital. They also helped some survivors out of the rubble. Heavy machinery was also deployed at the scene. President Mwai Kibaki, who was on a trip to South Sudan announced that he would cut short the official visit in order to coordinate the rescue efforts.¹⁷⁹

Israel's army sent a search and rescue team armed with rescue dogs. The team also included doctors and professional searchers, along with humanitarian and rescue supplies. The Israeli army rescuers flew in overnight (on the night of the collapse) to help Kenya rescue more people that were caught up in the rubble.¹⁸⁰ They departed to Kenya following a request relayed to then Foreign minister Tzippi Livni by Kenya's vice president, Moody Awori. They flew to Kenya in two planes carrying with them state of the art equipment.

Kenyan officials welcomed the team warmly. Israeli rescue workers were no strangers to Nairobi as a team of one hundred and sixty had been sent to Nairobi in 1998 after the U.S embassy bombing just few kilometers from the scene of the collapsed building.¹⁸¹ The team managed to pull out four survivors and seven bodies from the rubble by the first day of their arrival. Two other

¹⁷⁷ Makori A. (2006) Building collapses in Nairobi in Daily Nation of Tuesday 24th January. p.2

¹⁷⁸ Ibid

¹⁷⁹ Ogutu S. (2006) Nairobi Building Collapses in The Standard Newspaper of Tuesday 24 January 2006 p.5

¹⁸⁰ Rafi E.(2006) Israeli Rescuers Assist Kenya after Building Collapses in Times of Israel magazine(Tel Aviv) of Tuesday 24th January 2006 p.6

¹⁸¹ Steven S. C (2012) Op Cit.

survivors were pulled out by the U.S and British rescue teams. The mission managed to pull out over a hundred survivors.¹⁸²

Yoram Elon, who headed the Africa department at the foreign ministry in Israel stated that Kenyans turned promptly to Israel for help not just because of their friendship of many years, but also due to the Israeli reputation when it comes to rescue missions. It is worth noting that in the last ten years, this friendship has been strengthened as both countries face a common struggle against Islamic terrorism.¹⁸³ As a result of the assistance, President Mwai Kibaki requested that Israel sends a team of experts to train Kenyans on emergency rescue and disaster management. The training was later conducted the following year in 2007.¹⁸⁴

2.8.6 Westgate Mall Attack

The attack began at noon on 21st September 2013, when Al-Shabaab militants broke into the premier shopping center, hurling grenades and shooting carelessly at shoppers. What followed was a siege that lasted eighty hours, and left at least sixty seven people dead, and more than one hundred and seventy injured.¹⁸⁵ The mall that is partly Israeli owned housed over eighty businesses including supermarkets and jewelry shops, at the time of the attack.¹⁸⁶

Some sources claimed that Israeli forces entered the mall and helped in rescuing the hostages. Others stated that Israel only offered advisers to help with the negotiation strategy, but not to storm the operation. Over a thousand people were rescued in the operation.¹⁸⁷ Whether Israel offered help in form the latter or the former, the country still stood with Kenya during the attack.

¹⁸² Ibid.

¹⁸³ K. Yaakov (2009) Kenya Israel Relations in the Jerusalem post of 14th November 2009.p 7

¹⁸⁴ Steven S. C (2012), Op Cit. p.346

¹⁸⁵ Bosire J. (2013) Westgate Mall terror Attack in The Standard Newspaper (Nairobi) of Thursday 26th September 2013 p.3

¹⁸⁶ Decalo S. (2013) Israeli owned mall in Nairobi under siege in Times of Israel, Sunday 22nd September 2013 p.2

¹⁸⁷ Ibid

The following day after the attack (Sunday 22nd September 2013), president Shimon Peres wrote a condolence letter to President Uhuru Kenyatta and the people of Kenya expressing his heartfelt condolences.

In his words, President Kenyatta too lost family members that were closely related to him in the attack.¹⁸⁸ Just a month to the heinous mall attack, Mossad agents along with F.B.I officials had helped in investigating whether an inferno at J.K.I.A was a terrorist attack.¹⁸⁹ It turned out that it was not. The Mossad has a small military camp in Nairobi that helps maintain security ties with Kenya and other East African countries.

All the Israelis in the mall had been successfully evacuated. One of those who had been successfully rescued was Yariv Kedar, a representative of the Amiran Company, who had been in the country for seven years.¹⁹⁰ Israeli deputy ambassador, who was the acting ambassador on that weekend, Yaki Lopez estimated that the attack was not directed against Israelis.¹⁹¹ He continued to note that there was no degree of panic among the Israelis in the country.

2.9 Conclusion

Kenya's relations with Israel began as early as 1953, long before Kenya's independence in 1963. The two countries have since experienced good relations, except during the 1973-1988 diplomatic rupture. Kenya had however remained secretly allied to Israel culminating in Kenya's help to the state of Israel in the 1976 Entebbe Raid. Kenya had maintained an 'interests section' in the Netherlands embassy despite having closed Israel's embassy at Nairobi's lower hill area.

¹⁸⁸ Bosire J. (2013) Op Cit. p.5

¹⁸⁹ Decalo S. (2013) Op Cit p.3

¹⁹⁰ Ibid

¹⁹¹ Times of Israel, Sunday 22nd September 2013 p.3

However, Kenya remained secretly allied to Israel culminating in Kenya's assistance of Israel during the 1976 Entebbe raid. The relations of the two countries range from trade, security, agriculture and in the medical field. ¹⁹²

¹⁹² Interview with Sebastian Odhiambo on 2nd September 2018, at 2.00pm at Middle East Directorate, Ministry of Foreign Affairs, Nairobi.

Chapter Three

An Evaluation of the Performance of the Selected Irrigation Schemes in Kenya

Introduction

One of the ways of addressing the global concern on access to food for an ever growing population is increasing agricultural yields through irrigated systems.¹⁹³ The need for irrigation has been necessitated by global warming that has been manifesting in form of erratic torrential rainfall, unexpected short seasons, speed of wind and increased pests and diseases among others, have reduced soil fertility, and increased erosion on farmland.¹⁹⁴ This chapter seeks to assess the general performance of the selected Irrigation schemes in Kenya.

They are spread over various agro-ecological zones. This allows for the spread of pests and diseases, less competition for water, among other factors.¹⁹⁵ The National Irrigation Board (N.I.B) manages the seven Irrigation schemes. They are:

3.1 Mwea Irrigation Scheme

The scheme was started by the colonialists at the height of the state of emergency. It started as a detention camp for Mau Mau detainees, where they provided labor.¹⁹⁶ Research to establish whether the rice crop would do well in the area began in 1953. Previously, the entire scheme area was being used as communal grazing ground. Rice growing officially began in 1956.¹⁹⁷ The scheme is located in Kirinyaga County, Mwea East and West Sub-Counties, occupying a total land area of

¹⁹³ Francise Z. K. and Alex W. (2011), "Irrigation Agriculture in Kenya: Impact of the Economic Stimulus Programme and long term prospects for food security in an era of climate change." Heinrich Boll Stiftung, East and Horn of Africa.(Nairobi)p.3

¹⁹⁴ Ibid p.4

¹⁹⁵ www.nib.or.ke 20/7/18

¹⁹⁶ Ibid

¹⁹⁷ Sisali, I.V, Muchangi, P. W. and Wendot, H. 2003. Typology of Irrigation in Kenya.' International Programs in Agriculture report p. 39.

30, 350 acres. However the land under irrigation is 26,000 acres.¹⁹⁸ Today, the National Irrigation Board oversees the development of the primary and secondary infrastructure. Seven thousand and twenty two households live in the scheme. The farmers are responsible for any further Infrastructure Development¹⁹⁹

Mwea Irrigation Scheme which mainly grows Basmati 370 rice gets its water from Rivers Thiba and Nyamidi.²⁰⁰ Though the irrigation scheme is mainly known for its rice production, other crops are also grown in the scheme.²⁰¹ The rice produced in Mwea accounts for 80% of the rice production in the country. The rice produced in the 2017/2018 crop year tripled from 25,369 tonnes in the 2016/2017 season to 75,094 tonnes.

According to a National Irrigation Board Member the increase in production was due to a change in irrigation water distribution. The previous season had been affected by irrigation activities in upstream River Thiba which provides 80% of the water used for irrigation.²⁰² The country produces 150,000 tonnes of rice annually while the demand for rice is 400,000 tonnes. The country then imports the 250,000 tonnes deficit to bridge the gap.

The method of irrigation used in Mwea Tebere is basin irrigation. Here, water is directed into shallow basins using canals. This method is efficient since the area gently slopes away from the main river.²⁰³ The scheme has been successful through the years despite encountering several challenges. They include, but are not limited to, cold weather, rice blast disease, drought, low

¹⁹⁸ www.nib.or.ke/20/7/18

¹⁹⁹ Ibid.

²⁰⁰ Mwarasomba, L. I, Ndegwa, G. M. and Nyang'wara, M. K. 2006. Evaluation of the Project on Improving the Performance of Irrigation in Kenya. International Programs in Agriculture (IPIA) report p.6.

²⁰¹ Chambers, R. and John M. (ed) (1973) Mwea, an Irrigated Rice Settlement in Kenya. Munchen: Welt-forum Verlag p. 31.

²⁰² Interview at National Irrigation Board Office with an N.I.B official who did not wish to be named on Tuesday 18th September 2018 at 10.30 a.m

²⁰³ Juma S.(2014) Rice Irrigation in Mwea in Daily nation of 2nd July 2014 p. 19.

fertility and soil salinity.²⁰⁴ Another challenge that has been facing the scheme occurs when heavy rains fall and cause extensive damage of the canals that supply water to the scheme.²⁰⁵

Experts have now come up with innovative concepts to improve rice yields as well as to come up with rice varieties that carry suitable genes that are able to overcome stress conditions, resilient and adaptable for wide-ranging ecological settings.²⁰⁶ The research center at Mwea has so far developed up to 16 new rice varieties, to be studied at Nagoya University in Japan.²⁰⁷

3.2 Perkerra Irrigation Scheme

The scheme derives its name from River Perkerra which provides irrigation water and is the only permanent river in the area.²⁰⁸ After several studies indicated that the Baringo plains were fit for agriculture, construction of the scheme began in 1954. It is located a hundred Kilometres north of Nakuru Town near Marigat Township in Baringo South Sub-county.²⁰⁹

Perkerra Irrigation scheme began in 1954, and it came under the National Irrigation Board Management upon its (N.I.B) formation in 1966, through an act of parliament cap 347, laws of Kenya.²¹⁰ The entire scheme covers a total are of 5,850 hectares, however, the developed area is only 2,500 acres.²¹¹ Official operations began in 1959, with seed maize being the main crop.²¹² Other crops that are grown in the scheme are watermelon, onions and vegetables.

²⁰⁴ Ibid. p.11

²⁰⁵ Mwarasomba, L. 1 et al Op Cit. p.6

²⁰⁶ Juma S. (2014) Op Cit.

²⁰⁷ Ibid.

²⁰⁸ www.nib.or.ke retrieved 2017/18

²⁰⁹ Ibid

²¹⁰ Chambers R. (1973).The Perkerra Irrigation Scheme: A Contrasting Case. Afrika Studienstelle Munich p.6.

²¹¹ Ibid

²¹² Kipkorir, EC, D. and Labadie J. (2002) Seasonal Water Production Functions and Yield Response Factors for Maize and Union in Perkerra, Kenya. Agricultural Water management. P. 56.

The type of irrigation used in the scheme is gravity fed open earth channel conveyance with open furrow application system.²¹³ Annually the scheme is able to produce over two million kilograms of seed maize valued at over one hundred million shillings. The scheme has succeeded in producing seed maize and even has been able to incorporate other smaller community – based schemes in the production of seed maize, following the request of the farmers.

The schemes are Eldume, Sandai, Kapkuikui and Mosuro Irrigation Schemes. They draw their water from rivers Molo, Waseges, Lormai Springs and Kiserian Rivers respectively.²¹⁴ Another success that can be attributed to the Perkerra Scheme is the growth and development of Marigat town.²¹⁵ Water shortage is the greatest problem facing this scheme, but will be addressed once the Radat dam is constructed.²¹⁶

3.3 Bura Irrigation Scheme

The scheme was started in 1978 and is situated in Tana River County.²¹⁷ It lies fifty kilometers north of Hola Town, about four hundred kilometers north-west of Mombasa.²¹⁸ The construction was funded by the World Bank, Official Development Assistance (ODA), the European Economic Community (EEC), UNDR, finish government as well as the Netherlands and the Kenyan governments.²¹⁹ The first phase was completed in 1982. Between 1982 and 1990 the crops being produced were maize and cotton. Till then 2,500 hectares had been irrigated.²²⁰ However for the next fifteen years the project stalled due to inadequate water. The project was revived in 2005, and

²¹³ Ibid.

²¹⁴ www.nib.or.ke

²¹⁵ Carney, D. (1999). Introduction to Sustainable Rural Livelihoods. What difference can we make? London Department for International Development p. 15.

²¹⁶ www.nib.or.ke

²¹⁷ www.nib.or.ke retrieved 20/7/18.

²¹⁸ www.informationcradle.com/Kenyairrigation-in-kenya/retrieved 2017/18

²¹⁹ Environmental and Social Impact Assessment (ESIA) study (March 2015) report for rehabilitation of Bura Irrigation and Settlement Scheme, Tana River County P.1.

²²⁰ www.nib.or.ke retrieved 20/7/18.

maize production resumed. It is during that year that the management of the scheme was handed over to the National Irrigation Board.²²¹

Currently, the scheme covers a total area of 12000 acres, with the area under irrigation being 3,500 acres, 2,245 farmers live in the scheme.²²² The scheme which draws its water from Tana River uses a method of irrigation whereby once irrigation water is lifted or pumped from the river, it flows by gravity through the system that is placed and farmers are able to siphon it to their own farms.²²³

The irrigation method, has led to high cost of operation in the scheme because the generators and pumps used are diesel fueled. However, a water conveyance system that will use the force of gravity is under construction and upon completion, it is expected to reduce the cost of production in the scheme.²²⁴ Other crops produced in the schemes include: watermelons, onions, tomatoes, among others.²²⁵ The project has had a major positive impact in the economic empowerment of the people since the products are sold in Nairobi and Mombasa cities.²²⁶ Silted canals surrounded by *prosopis juliflora* sp (popularly known as Mathenge in the region) bush has proved to be a real issue, also posing a real environmental challenge too.²²⁷

3.4 Bunyala Irrigation Scheme

It is situated in the western Kenya region. It was established in 1964, but operations began in 1969.²²⁸ The scheme is the smallest of the public schemes covering an area of 1800 acres, but the

²²¹ Otieno B. (2016) The Revival of Bura Irrigation Scheme in Daily Nation of Saturday 19th November 2016p. 11

²²² Ibid.

²²³ www.eaeogroup.com./project/greater-bura-irrigation.development-project.

²²⁴ Mwangi M. (2017) Bura Irrigation Scheme in The standard newspaper of Jan 21st 2017 p.11.

²²⁵ Ibid.

²²⁶ www.nib.or.ke

²²⁷ Francise Z. K. and Alex W. (2011), op. Cit. p. 42

²²⁸ www.nib.or.ke.

area under irrigation is 1734 acres, with 1400 households living there. The main crop grown in the scheme is rice. It uses water from River Nzoia. Precisely, the scheme is situated in two locations. They are Bunyala Central which is in Busia District and Usonga in Siaya District.²²⁹

The rice produced in this scheme has been able to feed Kenyans in the region and beyond. Operations in the scheme had stalled in the late 1990's till early 2000's but it was revived in 2004. The method of irrigation used is Basin Irrigation. Other crops in the scheme include watermelons, onions and horticulture.²³⁰ This far, the scheme has managed to boost food security in the western region, as well as to create employment.

3.5 Ahero Irrigation Scheme

The scheme was started in 1966, but operations began officially in 1969. It is situated in the Kano plains between Nandi Escarpment and Nyabondo Plateau.²³¹ The main crop produced in the scheme is rice.²³² The gazetted area is 4,176 acres, while the area under irrigation is 2,586.5 acres. The scheme which sources its water from River Nyando uses basin type of irrigation.²³³

Other crops grown include: soya beans (seed), contracted by seed Co. Limited – Kitale, soya beans (commercial), watermelons, maize, tomatoes and sorghum are also grown in the scheme.²³⁴ Despite bumper harvests, farmers are usually faced with lack of proper storage facilities. Just like Bunyala Scheme, Ahero has been able to alleviate food insecurity in the region as well as create employment.²³⁵ Challenges that are facing the scheme include; recurrent damages

²²⁹ Mambala F. (2007) Bunyala Irrigation Scheme (Kenya). A Case Study of the Munaka Outgrowers Community Based Organization, Institute for Sustainable Commodities. P.1

²³⁰ Njagi T. (2009) 'Irrigation Management and Agricultural Production. The Case of Rice Production in Kenya: MA Dissertation National Graduate Institute for Policy Studies, Japan. P.5.

²³¹ www.nib.or.ke

²³² Ibid

²³³ Government of Kenya (2009). Ministry of Water and Irrigation "Irrigation and Drainage Master Plan Government Printer, Nairobi Kenya.

²³⁴ www.nib.or.ke

²³⁵ www.nib.or.ke.

to floods, soil erosion, inconsistent water volumes in River Nyando, poor road networks and lack of water storage facilities that can be used during the dry spell.

3.6 West Kano Irrigation Scheme

West Kano is situated in the Kano Plains between Nandi escarpment and Nyabondo Plateau on the shores of Lake Victoria.²³⁶ Established in 1974, the scheme covers a gazette area of 4,450 acres, with 2,250 acres under irrigation.²³⁷ The scheme was however not in operation for a while due to conflicts between the National Irrigation Board and farmers.²³⁸

Due to its low lying topography, water is able to be drawn from Lake Victoria using pumps, and directed to farms using canals. Water drainage is also done through canals back to Lake Victoria.²³⁹ Operations resumed in 2003, with the main crop being rice. Challenges facing the scheme include pests and diseases, as well as receding water levels.²⁴⁰

3.7 Tana Irrigation Scheme

Tana, (also called Hola) Irrigation Scheme is among the eldest NIB schemes. It was started in 1953 by the colonial government whereby detainees provided free labour.²⁴¹ The gazetted area is 12,000 acres. The current irrigated land is 4,700 acres, with 1,050 households living in the Irrigation and settlement scheme.²⁴²

²³⁶ www.nib.or.ke.

²³⁷ Franchise Z. K. and Alex W. (2011), "irrigation Agriculture in Kenya: Impact of the Economic Stimulus Programme and long term prospects for food security in an era of climate change. "Heinrich Ball Stiftung, East and Horn of Africa (Nairobi) p. 41.

²³⁸ Ibid.

²³⁹ Government of Kenya (2009), Ministry of Water and Irrigation and Drainage Master Plan," Government Printer, Nairobi Kenya. P. 10.

²⁴⁰ Government of Kenya (2004). Ministry of Agriculture and Ministry of Livestock and Fisheries Development "Strategy for Revitalizing Agriculture, 2004-2014," Government Printer, Nairobi Kenya. P.11.

²⁴¹ Franchise Z. Karina and Alex Wambua. Op.cit.p.43.

²⁴² www.nib.or.ke retrieved 20/7/18

Irrigation operations stalled in 1989 when River Tana naturally changed its course at the Laini water intake point, since irrigation water would come from the river, the project was left without an alternative source of water. All that remained was the maintenance of NIB assets.²⁴³ Prior to the collapse of the scheme, the main crop was cotton with other crops like groundnuts, maize and cowpeas.²⁴⁴

Rehabilitation of the scheme was done in 2009 and it was funded by Arab Bank for Economic Development in Africa (BADEA) and the Government of Kenya.²⁴⁵ Currently, maize is the main crop. The source of irrigation water is still River Tana, and the method of irrigation used is furrow irrigation, after water has been abstracted through pumping and conveyed and distributed in open earth canal.²⁴⁶ The greatest challenge facing the scheme include frequent breakdown at the pumping unit.²⁴⁷

3.8 Conclusion

Kenya has an untapped irrigation potential that is estimated at about 1.3 million hectares of arable land, yet only 10% (125,000 hectares) has currently been irrigated. The public irrigation schemes discussed amount to about 43,270.5 acres under irrigation as opposed to a gazetted area of 70,626 acres. This then means that the irrigation potential in the country has not been explored fully. For the potential to be fully realized, there needs to be water resource conservation and management.²⁴⁸ About 30% can be achieved with the current rainfall levels that the country receives, while the rest would require proper water harvesting techniques.²⁴⁹

²⁴³ www.nib.or.ke retrieved 20/7/18

²⁴⁴ Franchise Z. K. and Alex W. Op Cit. p. 43.

²⁴⁵ Ngigi S. (2002). Review of Irrigation Development in Kenya, in Blank et al, (eds), (GoK) 2010. Agricultural Sector Development Strategy 2010-2020 p.30.

²⁴⁶ www.nib.or.ke.

²⁴⁷ Ngigi S. (2002) op. cit. p. 10.

²⁴⁸ Franchise Z. K. and Alex W. Op.cit.p.50

²⁴⁹ Ibid

²⁵⁰Approximately twenty four million hectares in the ASALs have the potential to support livestock rearing, while 9.2 million hectares can support crop growing if put under irrigation.²⁵¹ Nationwide, the government seeks to irrigate another 600,000 to 1.2 million hectares. If this is achieved, the land being farmed in ASALs will be twice the total farmable land in the country.

²⁵⁰ Norman L.(1973) Op Cit. p.80

²⁵¹ <http://kippra.or.ke/harnessing-the-potential-of-irrigated-agriculture-for-food-security/> retrieved 27/9/2018

Chapter Four

An Assessment of the Galana Kulalu Irrigation Scheme

Introduction

In Israel, only 20% of the total land is arable. In fact, the country's natural water supplies are below the United Nations' definition of water poverty. Paradoxically, Israel is able to produce over 90% of the food required by its population.²⁵² Over the years, the world has even received amazing new agricultural products from Israel. For instance, the seedless, hardy Bet Alpha cucumber, seedless pepper, the spaghetti squash that is rich in antioxidants and the Anna Apple (that is suitable for hot climates).²⁵³

The water shortage issue is dealt with by recycling 86% of the water, being ahead of countries like Australia which is at 10% water recycling. The use of desalination plants so as to turn the salty water into water fit for irrigation works to further alleviate the water shortage problem. As a result, Israel is now a water surplus country. Since 2004, 17% of the country's budget allocation for agriculture goes to Research and development.²⁵⁴

These, among several other achievements in the field of agriculture make Israel the ideal agricultural partner for Kenya. Kenya, like Israel is mainly Arid and Semi-Arid. Hence irrigation and good agricultural practices are key for the two countries to adequately feed their population. This chapter therefore assesses the status of The Galana Kulalu Irrigation Scheme, that is being undertaken with the help of the Israelis, using their technology and expertise. This study believes that the project holds the key to a food secure Kenya.

²⁵² Johns P. (1964) Israel; Its Life and Culture. Oxford University Press. p. 190

²⁵³ <https://www.israel21c.org/top-12-new-fruit-and-vegetables-species-developed-in-israel/> 10/11/18

²⁵⁴ <https://www.export.gov/apex/article2?id=Israel-Agriculture> 10/11/18

4.1 Brief Background Information on the National Food Security Project

The project was launched by President Uhuru Kenyatta in January 2014, although official construction of the model farm began on 11th September 2014.²⁵⁵ It is located in Kilifi and Tana River Counties, at the Coastal part of Kenya. It is in line with the big four agendas that the president seeks to fulfill as part of shaping his legacy. Number two of President Uhuru Kenyatta's Big Four action plan has to do with Food security and nutrition commitment.²⁵⁶ The other agendas are, Manufacturing, Universal health coverage and affordable housing.²⁵⁷

Though the N.I.B had initially intended to have 1.2 millions acres of land under irrigation, feasibility studies showed that the irrigation water in River Galana would not be sufficient. The Board then had to settle for irrigation of less acres in Galana but also meet the target (in acreage) through expanding other existing national schemes.²⁵⁸

The model farm lies within Galana-Kulalu Ranches that are on Government (GOK) land and has been rented by NIB from Agricultural Development Corporation (A.D.C).²⁵⁹ The scheme has leased the 20,000 acres for five years, costing taxpayers a total of 3.2 billion shillings, despite having developed only ten thousand acres.²⁶⁰ The project which is being conducted by the National Irrigation Board is designed to take place in three phases. Phase one: Establishment of a ten thousand-acre model farm to test the recommended technologies. These are drip and center pivot systems. Phase two: Development of a two billion cubic meters dam and water conveyance system for four hundred thousand acres.²⁶¹

²⁵⁵ www.nib.or.ke retrieved 20/9/18

²⁵⁶ <http://www.president.go.ke> retrieved 20/9/18

²⁵⁷ Ibid

²⁵⁸ Makau R.(2017)/Why Galana scheme acreage has dropped in the Business Daily of 20/5/2017 p. 10

²⁵⁹ National Environmental Management Authority (2015). "Environmental and Social Impact Assessment (ESIA) for the Model Farm in Galana- Kulalu" p. 9

²⁶⁰ Ibid

²⁶¹ www.nib.or.ke retrieved 20/5/2017

Phase three: The development of major infrastructure including; link roads and railway lines to the Standard Gauge Railway (S.G.R) and the Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) corridor and an international airport.²⁶²

Green Arava has been piloting the ten thousand model acre farm under the supervision of the National irrigation Board.²⁶³ The model farm was planned to be completed in March 2017 but later the contractor requested for more time which was granted up to 20th January 2018.²⁶⁴ The contract was awarded to Green Arava Ltd at an original sum of Kshs. 14,545,106,963.00, the sum was later reviewed downwards to 7.2 billion shillings. This is the cost that is set to develop the model acre farm only (Phase one of the project). The project is funded by the Kenyan government, which has acquired a loan from an Israeli bank.²⁶⁵ Below is a summary of the project details.

Table 1: Project details in summary

Contract	Green Arava
Starting date	11th September 2014
Expected completion date for the infrastructure	10th March 2016
Project completion date	9th March 2017
Extended completion date	20th January 2018
Current status	Construction of the model farm is ongoing and is at 85% done in terms of infrastructure, under “liquidated damages for delay” sub-clause 47.1 of FIDIC, 1987
Original contract sum	14,545,106,963.00
Contract sum after deferment	7,294,853,036.00

Source: National Irrigation Board

²⁶² Ibid

²⁶³ www.pressreader.com/kenya/the-east-african/20180623/281925953740305 retrieved 20/9/2018

²⁶⁴ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

²⁶⁵ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 t 12 noon.

The following table shows in detail the components that were deferred leading to the downward review of the total amount of phase one.

Table 2: A breakdown of the deferred project components

No.	Description	Original cost (ksh)	Proposed cost (Ksh)
1.	Irrigation Systems	2,573,533,429.00	2,379,201,079.00
2.	Pumping Stations	869,497,839.76	813,062,845.20
3.	Logistics Center and Agricultural Machinery	3,887,178,175.00	1,280,715,440.00
4.	Operations and Maintenance	3,393,725,131.61	2,362,788,194.51
5.	Business Concept Plan, Resource Exploration, Stakeholder Mobilization and Settlement	1,279,702,424.00	88,000,000.00
	SUBTOTAL	12,003,536,999.97	6,923,669,558.71
	Contingencies	360,106,110.00	346,183,477.94
	TOTAL 1	12,363,643,109.97	7,269,853,036.65
	Supervision	123,636,431.10	25,000,000.00
	Total 2	12,487,279,541.07	7,294,853,036.65
	Taxes	2,372,583,112.80	–
	Total 3	14,859,862,653.87	7,294,853,036.65
	LESS DISCOUNT	314,755,690.00	–
	TOTAL PROJECT COST	14,545,106,963.00	7,294,853,036.00

Source: Galana Kulalu site engineer

4.2 Project Expenditure

In terms of payment, the total amount of money that the contractor had received as at September 2018 was Ksh. 5,999,050,371.94. Payment is done through certificates. Till then, five certificates amounting to Ksh. 2,555,917,049.55 had been paid by NIB, while the 6th, 7th, 8th, 9th

and 10th certificates worth Ksh. 561,786,432.06, Ksh. 1,054,153,524.48, Ksh. 328,715,414.72, Ksh. 811,506,155.18 and Ksh. 686,971,795.95 respectively had been processed and paid by the loan obtained from the Israeli Bank. The 11th certificate had since been rejected since the works were incomplete.²⁶⁶

4.3 Work Progress

The overall implementation of the project was at 85% complete. Green Arava was working on extended time, and was set to have completed the entire model farm by December 2018.²⁶⁷ The project which sources its water from River Galana²⁶⁸ uses two types of irrigation systems. These are Centre pivot and drip (open field and greenhouses).²⁶⁹ “Drip and center pivoting irrigation systems are very efficient at saving water, at 90% and 75.90% water efficiency respectively, as opposed to the commonly used furrow and basin irrigation methods, which are at 40% water efficiency.”²⁷⁰

4.3.1 Centre Pivot

Centre Pivot irrigation system is a structure consisting of pipes that can be moved around a central point that is linked to a water supply.²⁷¹ This method originated in Nebraska in the 1950s and is now very common in the world, because of its efficiency, high uniformity, low maintenance and management costs as well as its ability to irrigate uneven terrain. It can be used to apply either water, fertilizers, chemicals as well as herbicides.

²⁶⁶ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

²⁶⁷ www.nib.or.ke retrieved 20/9/18

²⁶⁸ Green Arava (2016) ‘Report on Galana Kulalu Food Security Project’ p. 6

²⁶⁹ www.nib.or.ke retrieved 20/9/18

²⁷⁰ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

²⁷¹ Waller P., Yitayew M. (2016) Center Pivot Irrigation Systems. In: Irrigation and Drainage Engineering. Springer, Cham p.12

The system moves through the field by electricity powered tractor wheels. It is self propelled and generally applies water to crop or pasture from above the canopy. The greatest challenge however is the inability to prevent run off at the end of the pivot, where application rates are highest.²⁷² In Galana Kulalu scheme, centre pivot irrigation system was supposed to use sprinkler targets to irrigate 3960 acres. The contractor should have installed twenty four centre pivot systems, with each irrigating one hundred and sixty five acres, but so far (by September 2018), twenty had been installed with a capacity to irrigate 3300 acres.

The remaining four center pivot systems were set to be supplied and installed on a later date. The area under centre pivot (a total of 3300 acres), is set to be handed over to Agricultural Development Corporation (A.D.C) for commercialization. The diagram below shows the Centre Pivot System being used to irrigate maize. The picture was taken in April 2018.

Figure 1: Centre Pivot System in operation at Galana Kulalu



Source: Galana Kulalu Chief site engineer

²⁷²Ibid

4.3.2 Drip System

Drip irrigation also called trickle irrigation involves dropping of water into the soil slowly at low rates of about 2-20 litres per hour. This method was started in the U.S and Israel to aid in farming in the Arid and Semi-Arid Lands.²⁷³ The water is usually from a system of small circular plastic pipes that have outlets called emitters or drippers. Water is applied more frequently about one to three days.²⁷⁴ This method of irrigation is efficient in saving water, because unlike other methods like sprinkler and surface irrigation that wet the entire soil profile, in drip method water is applied near the plants so that only the soil in which the roots grow is wet.

Another advantage of drip irrigation is that chances of eutrophication are decreased, meaning that fertilizers are not washed away by water run offs.²⁷⁵ Despite its efficiency, drip irrigation is prone to blockage of the drippers. The emitters range from 0.2-2.0mm in diameter hence it is important for the irrigation water to be free of deposits.²⁷⁶

In Galana Kulalu scheme, drip irrigation System will be used to irrigate 5,265 acres. Drip lines that are able to cover 1,025 acres had been supplied, and were yet to be installed. Installation of drip system covering 1,800 acres had already been completed. Usually one or two emitters are enough per crop.²⁷⁷ After the previous harvest, land preparation under drip resumed in September 2018, and already over one thousand acres of land had been prepared.

The main pipeline, for the first drip irrigation area of 2,435 acres had already been completed but the other laterals were yet to be installed. The next pipeline to the drip area of 2,830

²⁷³ Ibid

²⁷⁴ <https://www.irrigationtutorials.com/drip-irrigation-design-guidelines-basics-of-measurements-parts-and-more/> retrieved 10/11/18

²⁷⁵ <https://interestingengineering.com/how-exactly-does-drip-irrigation-work> retrieved 10/11/18

²⁷⁶ <https://www.irrigationtutorials.com/drip-irrigation-design-guidelines-basics-of-measurements-parts-and-more/> retrieved 10/11/18

²⁷⁷ Ibid

acres was under construction at 2.2 km. The first diagram below shows the completed pipeline. while the second diagram shows the already constructed water reservoir for the drip irrigation area.

Figure 2: The main pipeline for the first drip irrigation area



Source: Galana Kulalu chief Site engineer.

Figure 3: Excavated reservoir



Source: Galana Kulalu Chief Site Engineer.

Drip irrigation might be the future. Italy for instance began using drip irrigation in 2011 to grow crops like corn and fruits. The use of drip is estimated to save the country 4.3 billion Euros

over the next thirty years.²⁷⁸ A report by World Water Development estimates that 47% of the world's population are likely to be living in areas with insufficient water supply by the year 2030. If this report is anything to go by, then there is absolute need to use methods of irrigation that conserve water like drip irrigation.²⁷⁹

4.3.3 Pumping Stations

When the project was being conceptualized, it was planned that two pumping stations be constructed on the model farm. This involved the construction of cross weir, diversion canal, pump houses and pump installation. A weir is a low dam built across a river to raise the level of water upstream or regulate its flow.²⁸⁰ “The first pumping station was already complete and had five pumps to command 2,265 acres and also to supply water for all the domestic requirements of the staff.”²⁸¹ The second pumping station already had eight pumps installed, and they have an ability to command 5,735 acres.²⁸²

Eight pumps had already been installed and proven to be functional. Two other pumps were yet to be installed. The eight already installed are connected to twenty centre pivots and part of the drip irrigation area. Six more pumps were yet to be installed for the drip area, even though they had already been supplied. Generally the construction of the second pumping system was complete except for the installation of five pumps, which had already been supplied by the time of the interview with the site engineer (September 2018).²⁸³

²⁷⁸ <https://interestingengineering.com/how-exactly-does-drip-irrigation-work> retrieved 10/11/18

²⁷⁹ Ibid

²⁸⁰ <https://www.merriam-webster.com/dictionary/weir>

²⁸¹ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

²⁸² Ibid

²⁸³ Interview via Email with Engineer Charles Muasya on 20th September 2018.

4.3.4 Maize Production

The contractor was also required to oversee production of maize on the entire 10,000 acres, apart from providing the required irrigation infrastructure, machinery, equipment and other facilities.²⁸⁴ Production takes place twice a year. As at September 2018, Green Arava had managed to plant and harvest 5,145 acres since 2015.²⁸⁵

This first phase involved not just infrastructure development, but also trials for suitable maize varieties for the area. Of the maize varieties tested, the lowest production seen was five (50 kilograms) bags per acre, with the highest being thirty nine (50 kilograms) bags of maize. On average, the maize production at Galana Kulalu Food Security project stood at thirty one (50 kilograms) bags per acre. In total, the maize produced and sold in fifty kilograms bags was 196,666.²⁸⁶ Below is a summary of the maize produced since April 2015.

Table 3: A summary of the maize produced since April 2015

Period	Area	Yield (50 Kg Bags)
April 2015 – October 2015	500	15,402
September 2015 - January 2016	500	5,582
April 2016 – October 2016	2000	106,318
March 2017-December 2017	2145	69,364
Total	5145	196,666

Source: Galana Kulalu Chief Site Engineer

²⁸⁴ www.nib.or.ke retrieved 20/9/2018

²⁸⁵ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

²⁸⁶ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

The 196,666 bags (all in 50 kgs bags) that had produced were accounted for as follows; 86,039 bags had been distributed as relief in the Coast region through the State Department for Special Programs. 85,402 bags had been purchased by National Cereals and Produce Board (NCPB) for strategic food reserve. 10,000 bags had been purchased by Kilifi county. 356 bags had been processed into maize meal and distributed to be used in the school feeding programme. 14,869 bags from the last harvest were stored in the Voi NCPB storage facility.²⁸⁷

4.3.5 Corporate Social Responsibility

The National irrigation board has a policy of corporate Social Responsibility (C.S.R).²⁸⁸ Also in line with presidential directives, the National Irrigation Board has employed five hundred people, of whom 90% are locals. N.I.B also has a livestock improvement scheme whereby, they have already bought fifty bulls from the locals.

The bulls are however being kept by the Tana River County government. Seeing that the locals there are livestock keepers, the N.I.B had to set aside a six kilometer wide access road to River Galana, where they can take their animals to the river. The access corridor which is between Tsavo East national park and ADC Galana farm was set aside mainly to ensure that there would be no conflict of resources.²⁸⁹ Also, the N.I.B together with the Tana River county leadership had engaged surveyors who demarcated 250,000 acres of land for use by the community.²⁹⁰

The following community projects were to be undertaken. Seven water pans were to be identified in the livestock corridor.²⁹¹ A pan is a small reservoir created by digging open ground, to collect and store surface runoff from uncultivated grounds, from hillsides, roads, rocky areas

²⁸⁷ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

²⁸⁸ www.nib.or.ke retrieved 20/8/17

²⁸⁹ National Environmental Management Authority (NEMA) Op Cit.

²⁹⁰ www.nib.or.ke retrieved 5/7/2018

²⁹¹ Ibid

and open rangelands. They rely fully on surface runoff and do not receive groundwater contribution.²⁹² This is to prevent livestock from straying into the Tsavo east National park. Two water pans had already been created. One hundred portable pumps had been delivered to Kilifi farmers to further improve their farming techniques. Finally, as part of Corporate Social responsibility, the N.I.B had already installed ten green houses in Kilifi County and are under production.²⁹³

4.4 Issues around Irrigation in Kenya and Globally

By 2012, there were 324 million hectares identified as fit for irrigation, but only 275 million hectares (85%) are actually irrigated. The fact that Irrigated land attributes 20% of the total cultivated land, but contributes 40% of the total food produced worldwide, emphasizes the need to use modern irrigation techniques so as to gain maximumly from the practice.²⁹⁴ Sub-Saharan Africa is the region with the lowest amount of land being cultivated under irrigation (3% against 21% global level).

Considering its land water resources, it is the region with the greatest potential for expanding irrigation agriculture. Only a fifth of the region's irrigable land has been put under irrigation, that is 7.7 million hectares out of an irrigable 38 million hectares.²⁹⁵ Only 20% of Kenya's land is suitable for rainfed agriculture. But there is a potential for the agricultural land to be increased by 10% through irrigation. The country however continues to experience perennial food shortages as technological constraints and lack of capital hinder the actualization of this potential. The Galana

²⁹²<http://www.jkuat.ac.ke/departments/warrec/wp-content/uploads/2015/09/WATER-PANS-AND-PONDS.pdf> retrieved 21/9/18

²⁹³ www.nib.or.ke retrieved 5/7/2018

²⁹⁴ Francise Z. Op Cit.

²⁹⁵ Ibid

Kulalu Scheme however overcomes this barriers by employing state of the art Israeli technology in growing maize.

4.5 Conclusion

The ten thousand model acre farm is being conducted on a pilot basis with an aim to test the viability of the proposed irrigation methods, and the best maize varieties for the area. Maize is the only crop that will be grown on the ten thousand acres farm.²⁹⁶ It will be produced one season annually, so as to lower the risk of over saturating the market, which could hurt farmers.²⁹⁷

Punda Milia variety has produced the best maize yields out of the about ten varieties that were tested. The perception that the project is a failure is premature as the project is massive and is being conducted in phases. With the success of the pilot project, the scheme will be expanded to the next phase. Once the first phase is fully completed, Green Arava will exit and leave the management to the Agricultural Development Corporation (A.D.C).²⁹⁸ “There are also plans by the National Irrigation Board to transfer the irrigation technology being used at Galana to other irrigation schemes in the country, with an aim of conserving water.”²⁹⁹

Furthermore the Israeli government has committed itself to train Kenyans through its MASHAV program on irrigation agriculture. One hundred Kenyans will be trained in Israel annually for six years.³⁰⁰The trained Kenyans will then come back to oversee the sustainability of

²⁹⁶ www.nib.or.ke retrieved 5/7/2018

²⁹⁷ Njugunah, Margaret. (2016, January 22). Kenya: Galana Project Will End Food Insecurity –Wamalwa. Capital FM. Retrieved from <http://allafrica.com/stories/201601230383.html>.on 5/7/2018

²⁹⁸Interview via Email with Engineer Charles Muasya (N.I.B)

²⁹⁹Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

³⁰⁰ Andae G. (2016) Uhuru on Israel State Visit to Cement trade, security ties in Business daily of 20th February 2016 p.10

this and other projects in the country. This trainings are meant to ensure that the project will not collapse after the exit of the contractor. When completed, Galana Kulalu will join the list of Africa's largest irrigation Schemes.

Chapter Five

Challenges, Opportunities and Prospects of the Galana Kulalu Irrigation Scheme

Introduction

This chapter looks at the challenges that the project is facing. The project also looks at the opportunities and prospects in the entire project. Upon completion of the first phase, the second phase will begin. The second phase will be informed by the results of phase one. It will entail the cultivation of four hundred thousand acres of land. In this phase of the Food security project, the National Irrigation Board intends to engage four Kenyan Universities.

They are, The University of Nairobi, Jomo Kenyatta University of Science and Technology (JKUAT), Moi and Egerton Universities. The mandate of the universities will be to check further the viability of the second phase as well as to advise the N.I.B on cost reduction.³⁰¹

5.1 Challenges Facing the Project

The implementation of this phase is however limited to the availability of water in River Galana. To expand the project further will be a gradual process as there is limited water in River Galana. The N.I.B will need to tap water from the High Grand falls on River Tana which is two hundred kilometres from The Galana Kulalu National Food Security Project. Hence there will be need to construct a two billion Cubic metres dam to store the water.³⁰² Construction of the dam will take approximately three years from the date it will begin. One of the greatest challenge that the scheme faced in the initial stages was being able to select the most suitable maize variety for the area. Over ten varieties had to be tested, six proved successful, while the rest could not do well in the region.³⁰³ Another challenge that still faces the scheme is frequent flooding in the area,

³⁰¹ Interview via Email with Engineer Charles Muasya (N.I.B) on 20/9/18

³⁰² Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

³⁰³ Ibid.

whenever there are heavy rains in the Central Highlands of Kenya. Kilifi and Tana River Counties usually experience heavy floods, as Tana and Athi Rivers pass through the regions, as they drain water to the Indian Ocean.³⁰⁴

Figure 4: Effects of floods on the project in May 2018



Source: Galana Kulalu Chief Site Engineer.

Poor Infrastructure was yet another challenge that was facing the project. The two roads leading to the project (The Magarini Marafa Road and Malindi Salagate Road),³⁰⁵ were not in good condition and this made it difficult to transport machinery from Mombasa to the project site. There was also no bridge joining directly to the project hence accessibility was a big issue. As such, transportation of workers was a challenge. However, with the government's improvement of

³⁰⁴Oduori H.L and Njeru T. (2016) A Review Paper on Large Scale Irrigation in Kenya; A Case Study On Maize Tegemeo Institute on Agricultural Policy and Development, Nairobi. p.21

³⁰⁵ Ibid

the road from Malindi to Salaget, transport had begun to ease and even some matatus had started plying that route to the scheme.³⁰⁶

Another challenge that had been facing the project was human wildlife conflict. Now that Tsavo East National Park borders the project, animals (either from the park or owned by the locals) would stray and this would cause conflicts. In association with the Kenya Wildlife Service (KWS), a fence using solar power was put as well as an elephant proof trench across the farm.³⁰⁷ Also, trailers that are used to ferry maize to silos in Voi via the Tsavo East National Park scare away lions causing them to encroach on human land.³⁰⁸

There is also the danger of aflatoxin, which usually affects maize. The project had however managed to keep this problem at bay by use of aflasafe. Aflasafe is a safe natural solution that is made in Africa. So far it is available in only six African countries namely; Kenya, The Gambia, Senegal, Burkina Faso, Ghana and Nigeria (producing country).³⁰⁹ Aflatoxins are secondary metabolites that colonize crops in tropical and subtropical regions all over the world.

The most commonly affected crops are maize, peanuts, trees like Almonds, pistachios, hazelnuts and even milk. Aflatoxin, (which is produced by the fungi *Aspergillus flavus* and *A. Parasiticus*) does not only affect crops while they are on the farm, but can also affect them in storage, transportation and also in food processing. Exposure to aflatoxin can cause diseases like liver cancer and liver cirrhosis. Globally, aflatoxin exposures are more in Asian countries and Sub-Saharan Africa

³⁰⁶ Interview via Email with Engineer Charles Muasya (N.I.B) on 20/9/18

³⁰⁷ Interview via Email with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

³⁰⁸ National Environmental Management Authority (NEMA) Op Cit.

³⁰⁹ <https://aflasafe.com> retrieved 10/11/18

Unfortunately, contamination of food crops with aflatoxin is usually associated with economic rather than health burdens.³¹⁰ These dilemmas caused the former United Nations secretary General Kofi Annan to set appropriate aflatoxin standards worldwide. “As Per the European Union standards, the level of aflatoxin in maize should not exceed 10%. The maize produced at Galana is at 4% levels making it very safe for consumption. This has been achieved also by the use of Israeli technology.”³¹¹

The challenge of pest migration in the project has been easily controlled by the use of pesticides. The fall army worms which were initially a challenge have also been addressed.³¹² Another challenge facing the scheme is funding of the project. Delayed funding of the project has often times leads to the delay of the implementation of the project by the contractor.

There has been constant conflict between the National Government and both Kilifi and Tana River counties, with the latter complaining that the management of the project should be handed over to them as agriculture is now a devolved function.³¹³ In March 2018, there were complaints that locals were receiving rice from China as relief food opposed to maize grown from the project, which was the main aim of locating the project in the area.³¹⁴

The Kilifi County assembly, in the same month of March passed a motion that could have dire consequences for the project. One member of the County Assembly (Stanley Kenga, member for Ade), stated that by initiating the project without consulting the area residents/ locals, the project violated section 114 of the 2013 county Government Act and part 2 of the 4th schedule of

³¹⁰Wu F (2004) ‘Mycotoxin Risk Assessment for the Purpose of Setting International Regulatory Standards.’ *Environmental Science and Technology* 38: 4049–55. retrieved 12/11/18

³¹¹Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

³¹²Oburu S. (2018) State Surges on with sh. 400 Billion Project in *Daily Nation* of 20/1/18 p.25

³¹³Otieno K. (2018) Mps Order Galana Project stopped for Audit in *Business Daily* of 7/3/18.

³¹⁴Ibid

the constitution.³¹⁵ Finally, high cost of power has led to high cost of production. The project uses diesel powered generators in the pumping stations hence leading to high cost of food.³¹⁶

5.2 Prospects and Opportunities in the Galana Kulalu Food Security Project

Despite the challenges facing the project, there are also prospects therein. The main prospect for this project is improved food security. Maize (Kenya's staple food) is set to cover up to 80% of the project area. With the improved Israeli technology together with the use of efficient irrigation methods, it is expected that over 500,000 bags will be produced annually leading to improved food situation, not just in the region but also in the country.³¹⁷

The following enterprises have been envisioned by the N.I.B. Maize, sugarcane growing, orchards, dairy farming, beef ranching, apiculture, aquaculture and agro processing industries. The introduction of improved livestock production will lead to better livestock yields in the region. Also with the introduction of aquaculture, there will be diversification of the production and the economy of the area which is mainly known for its livestock production.³¹⁸ Furthermore, the envisioned enterprises like sugarcane growing and horticulture on the other hand will improve the micro-climate of Kilifi and Tana River Counties.³¹⁹

It is in this phase that private investors will come in to develop the second phase, but with an aim of addressing the issue of food security in the country. They will have to grow maize as their main crop.³²⁰ N.I.B has already put up an open international tender for private firms or

³¹⁵ Mwasya P. (2018) Row over Galana Kulalu in The Standard of Sunday March 11th 2018 p.24

³¹⁶ Interview with an N.I.B official who did not wish to be named, at N.I.B headquarters, Hurlingham Nairobi, on Tuesday 18/9/18 at 2pm.

³¹⁷ Oburu S. (2018) State Surges on with sh. 400 Billion Project in Daily Nation of 20/1/18 p.25

³¹⁸ Njugunah, Margaret. (2016, January 22). Kenya: Galana Project Will End Food Insecurity –Wamalwa. Capital FM. Retrieved from <http://allafrica.com/stories/201601230383.html>.retrieved 5/7/2018

³¹⁹ National Environmental Management Authority (NEMA) Op Cit.

³²⁰ Alushula P. (2018) State Invites Private Investors To Farm At Galana Kulalu In The Standard of 5/1/18 p.13

individual investors to bid for space.³²¹ The proposals need to be submitted by 6th February 2019. The interested investors will have to prepare technical and production proposals for the entire ten thousand acres or part of it.

The state is only interested in developing infrastructure for the project.³²² To be considered, the investors will have to show their technical and financial ability. As the project expands, there will be more job opportunities created for both skilled and unskilled workers. Currently, there are five hundred employees, of which 90% are locals.³²³ With the number set to increase significantly, 20% of the opportunities will go to Tana River and Kilifi Counties each, 60% of the opportunities will be distributed nationally and outside the country where need be.³²⁴

Flood control- Once the project begins to take shape, the area will benefit in that the water flowing downstream will be minimal and controlled. The area which is flood-prone will gain from a two million cubic metres dam that will be constructed. The water will then be used to irrigate crops in the project. Residents will also gain from the project through improved infrastructure. As the project expands, there are plans to build social amenities like schools, trading centres and roads. A police station that is planned for in the project will help boost the security of the entire region. The region has been prone to insecurity, including armed gangs.³²⁵

³²¹ Ibid

³²² Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

³²³ www.nib.or.ke retrieved 5/7/18

³²⁴ www.nib.or.ke retrieved 5/7/18

³²⁵ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

Chapter Six

Summary, Conclusions and Recommendations

Introduction

This study sought to assess the agricultural relations between Kenya and Israel. Using the Galana Kulalu Irrigation Scheme as its case study, it sought to evaluate the growth and development of the relations between the two countries since Kenya's independence. It also sought to evaluate the performance of the selected irrigation schemes in Kenya as well as to assess the status, opportunities and challenges of the Galana Kulalu project.

This chapter summarizes and concludes key issues emerging from the study and ends with recommendations. Specifically, the chapter gives an overview of the irrigation status in Kenya, and also explores the various government interventions to ensure improved food security. Furthermore, the chapter expounds what can be learnt from the work in understanding the importance of bilateral and multilateral relations between Kenya and other states in enhancing food security. This chapter then comes up with recommendations of future research gaps in understanding of the study area.

6.1 Summary

This study which is about how Kenya's relations with the state of Israel have evolved since the country's independence, is anchored within the complex interdependence conceptual framework. The concept which suits perfectly well the bilateral relations used both primary and secondary data, and used the thematic approach of presenting data, using verbal quotes to illustrate the findings. The study has established that Kenya's relations with Israel began as early as 1953, long before Kenya's independence in 1963. The two countries have since experienced good relations, except during the 1973-1988 diplomatic rupture. Even then, Kenya had maintained an

‘interests section’ in the Netherlands embassy despite having closed Israel’s embassy at Nairobi’s lower hill area. However, Kenya remained secretly allied to Israel culminating in Kenya’s assistance of Israel during the 1976 Entebbe raid. ‘The relations of the two countries range from trade, security, agriculture and in the medical field.’³²⁶

Irrigation is one of the ways of addressing the global issue on food shortage. This has been necessitated by global warming that has been manifesting in form of erratic torrential rainfall, unexpected short seasons, speed of wind and increased pests and diseases.³²⁷ The main irrigation schemes in the country are spread over different ecological zones. This makes it possible to diversify crop diseases and control pests, ensures less competition for water among other factors. The selected schemes are; Mwea, Perkerra, Bura, Bunyala, Ahero, West Kano and Tana Irrigation schemes.

The study notes that Kenya has about 1.3 million hectares of land fit for irrigation, though only ten percent has currently been irrigated. The aforementioned irrigation schemes total to about 43,270.5 acres of land under irrigation, as opposed to a gazetted area of 70,626 acres. This then means that the country’s irrigation potential is yet to be fully utilized. For the potential to be fully realized, there has to be water resource conservation. Only about 30% of the potential can be achieved with the current rainfall levels that the country receives, while the rest would require proper techniques to be able to harvest and store water. It is the government’s aim to have another 600,000 to 1.2 million hectares of land irrigated. If this is achieved, then the land under crop production in ASALs will be twice the total farmable land in the country.

³²⁶ Interview with Sebastian Odhiambo on 2nd September 2018, at 2.00pm at Middle East Directorate, Ministry of Foreign Affairs, Nairobi.

³²⁷ Francise Z. K. And Wambua A. Op. Cit.

In Israel, only 20% of the total land is arable. The Negev desert covers most of Israel's land. Paradoxically, the Jewish state manages to meet nearly all its food requirements. The country has even been able to invent new agricultural products like the seedless cucumber and seedless pepper. This, among other achievements make Israel the ideal agricultural partner. The study then highlights the help that the Israelis are offering Kenyans in term of technology and expertise in the Galana Kulalu Irrigation Scheme.

The ten thousand acres model farm is being conducted on a pilot basis. Its main is to test the viability of the proposed irrigation methods and the best maize varieties for the area. Only maize will be grown on the model far. Green Arava will exit upon the completion of the model farm and management will be handed over to the A.D.C.³²⁸ Israel has further committed itself to train Kenyans through the MASHAV program on irrigation agriculture. One hundred Kenyans will be trained annually. This will ensure that the project still stands even after the exit of the Israelis.

The study established that the project is being conducted in three phases, and that upon the completion of the first phase (model farm), the second phase will begin. It will entail cultivation of four thousand acres of land. ³²⁹Here, the study found that the N.I.B will seek to engage four Kenyan Universities. They are; Jomo Kenyatta University of Agriculture and Technology, The University of Nairobi, Moi and Egerton Universities. Their mandate will be to check further the viability of the second phase as well as to advice the N.I.B on the cost reduction. However, despite the prospects of the project, the study notes that the project has been facing various challenges for instance the availability of adequate water from River Galana. For the second phase to kick off, a two billion cubic metres dam to store water will need to be constructed. This is expected to take

³²⁸ Interview with Engineer Henry Ochiere (Chief Site Engineer) at Galana Kulalu, at N.I.B offices, Hurlingham Nairobi, on Tuesday 18/9/2018 at 12 noon.

³²⁹ www.nib.or.ke

about three years. Other challenges include; heavy floods, human-wildlife conflicts, as well as the danger of aflatoxin which normally affects maize.

6.2 Conclusions and Findings

This study sought to assess the growth and development of the relations between Kenya and Israel since independence, to evaluate the performance of selected irrigation schemes in Kenya, to assess the status of the Galana Kulalu irrigation scheme as well as to critically analyze the Galana Kulalu project including opportunities and challenges. It set out two hypotheses. They are; that the problems of hunger and food security are as a result of poor planning by the responsible bodies and organizations, and that there is a positive correlation between the strengthening of Kenya-Israel ties and boosting food security in Kenya, and examined them within the complex interdependence conceptual framework.

This chapter brings to an end this study by revisiting the set out objectives. On objective one which relates to hypothesis two, the study found out that partnerships between Kenya and Israel are beneficial to Kenya. It also responds to the same hypothesis that there is a positive correlation between the strengthening of Kenya-Israel ties and boosting food security in Kenya. This then means that increased bilateral relations in various fields, would improve various sectors of Kenya's economy like health and security.

One objective two, which relates to hypothesis one, the study found that after evaluating the selected irrigation schemes in Kenya, it refutes the first hypothesis that hunger and food insecurity in Kenya are as a result of poor planning by the responsible bodies and organizations. It instead acknowledges a combination of other factors such as global warming, over-reliance of rain fed agriculture, as well as lack of modern irrigation technology.³³⁰

330 Maxwell S.(1991) To Cure All Hunger, "Food Policy and Food Security in Sudan.; Intermediate Technology Publications, London, U.K p.16

On objectives three and four, that is to assess the status of the Galana Kulalu project, as well as to analyze the opportunities and challenges of the project, the study found that the project has so far been able to produce 196,666(50kilograms) bags of maize, of which 86,039 have been distributed as relief food in the Coast region through the state department of special programs. 356 bags have been processed into maize meal and distributed in the school feeding programme. 10,000 bags have been purchased by Kilifi County government, while 85,402 bags have been purchased by the National cereals and Production Board (NCPB) for strategic food reserve.

6.3 Recommendations

This study came up with both academic and policy related recommendations.

6.3.1 Policy

6.3.1.1 Strategic Food Reserve

Over the years, the government has had its focus on storing maize in its strategic food reserve. Several maize silos are located in various parts of the country including Voi and Rift valley. This study acknowledges the government's recent move to include rice in its strategic reserve as a positive step towards ensuring food security. This will enable Mwea rice farmers to sell their rice to the government as it is with their maize counterparts in Rift Valley.³³¹ It is however this study's recommendation that the country's food reserve should be expanded to include other food products like pulses, milk, fish and meat products, as a way of fighting hunger in the country.

6.3.1.2 Exploring the Country's Irrigation Potential

There is a lot of irrigation potential in the country in Arid and Semi Arid lands. This study therefore recommends that this potential be explored especially by putting the areas along the

³³¹ Kamau M. (2019) Rice Now Categorized under Strategic Food Reserve in The Standard of 3/1/19 p. 26

Tana, Athi, Yatta, Nyando and Nzoia basins under irrigation. ³³²During the rainy seasons, this rivers usually burst their banks and end up destroying a lot of crops. Dams can therefore be constructed at strategic places to trap the overflow, and later the water can be used to irrigate farms during the dry seasons.

6.3.2 Academic: Areas for Further Research

This study identifies two areas for further research. Their outcomes will complement the findings of this study.

6.3.2.1 Research on Subsequent Phases of the Project

Seeing that the Galana Kulalu is still in its initial stages with a lot of potential, opportunities and prospects this study recommends further research on the project. Due to the vastness of the project, it is being conducted in three phases. The first phase involves the establishment of a ten thousand model-acre farm to test the recommended technologies. The second phase seeks to develop two billion cubic metres dam and conveyance system for four hundred thousand acres.

Phase three on the other hand will involve the development of major infrastructure including; link roads and railways to the Standard Gauge Railway and the Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) corridor and International airport.³³³ Due to its vastness and the fact that the project is still ongoing, the study restrains itself to the first phase. This study therefore recommends further research in the second and third phases of Galana Kulalu Irrigation Scheme, as and when they are being implemented.

³³² Norman L. Op Cit.

³³³ www.nib.or.ke

6.3.2.2 Areas for Further Bilateral Relations

Although this study found that Israel and Kenya have cooperated in several fields, not just agriculture, it is this study's suggestion that more can still be done to further strengthen their ties, as the ties are beneficial to the latter. This study is however not exhaustive. Further research could be done in the area of security, seeing Israel's experience in dealing with extremist terrorism in the Middle East. The two countries are also viable economic partners, especially after president Uhuru's launch of direct flights to and from Nairobi to Tel Aviv.³³⁴ This study therefore recommends further research on the economic aspect of Kenya-Israel relations.

³³⁴ Mwangi M. (2018) Israel to Launch Direct Israel-Tel Aviv Flights After 15 Years in The Star of 27/4/18 p.18

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Appendix

Interview Guide

A. Questions to the National Irrigation Board

1. When was the National Food Security Project at Galana Kulalu started?
2. The project is based in Kilifi and Tana River Counties, who were the original owners of the land (was it leased, bought or rented)
3. What is the general objective of the irrigation scheme?
4. How have the past irrigation schemes in Kenya performed?
5. How different is this particular project?
6. What is the current status of this project?
7. What is the role of Green Arava from Israel in this project?
8. When completed, how much is the project expected to cost?
9. What is the source of funding for this project?
10. What are the challenges facing the project?
11. What are the opportunities and prospects in this project?
12. In your opinion, is there a correlation between Kenya's cooperation with Israel on agriculture and food security?
13. Is there a plan by the N.I.B to replicate the same technology to other projects in the country?

B. Questions to the Middle East Directorate (Ministry of Foreign Affairs)

1. When did Kenya establish official diplomatic relations with Israel?
2. During the diplomatic rupture of 1973, how was Kenya's relationship with Israel?

3. Apart from the ongoing National Food Security Project, are there other projects that Kenyans are undertaking with the help of the Israelis?
4. In your opinion, are we seeing more cooperation between Kenya and Israel during president Uhuru's regime than in the previous regimes?
5. In your opinion, is there a positive correlation between Cooperation of the two countries and food security in Kenya?