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ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT STUDY REPORT

Proposed Nucleus Sugarcane Plantation
Tembo Farming Limited
Matolani – Chakama Location
Magarini Sub-County
Kilifi County - KENYA

Prepared on behalf of:
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CERTIFICATION

This Environmental and Social Impact Assessment Study Report has been prepared on behalf of the Tembo Farming Limited by Mr. Daniel K. Kiige, a NEMA Registered Lead Expert, and Environmental Expert for Hiagro East Africa, a NEMA Registered Firm of Experts. This report has been done with reasonable skills, care and diligence in accordance with the Environmental Management and Coordination Act, 1999 and the Environmental Impact Assessment and Audit Regulations, 2003.

We, the undersigned, certify that the particulars given in this report are correct to the best of our knowledge.

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EXECUTIVE SUMMARY

Background

Worldwide sugarcane occupies an area of 26.9 million Ha with a total production of 1900 million metric tons. Sugarcane area and productivity differ widely from country to country. Brazil has the highest area (9.037 million ha), while Australia has the highest productivity (92.1 tons/ha). Out of 121 sugarcane producing countries, fifteen countries (Brazil, India, China, Thailand, Pakistan, Mexico, Cuba, Columbia, Australia, USA, Philippines, South Africa, Argentina, Myanmar, Bangladesh) covers approx. 86% of area.

Sugarcane Farming in Kenya supports over 250,000 small – scale farmers in Kenya. In addition, an estimated six million Kenyans derive their livelihood directly or indirectly from the sugar industry. Domestic production of sugar saves the country about Kshs 35 billion in foreign exchange.

In Kenya cane growing on a commercial scale began in Miwani and Kibos areas of Kisumu District and Ramisi and Shimoni areas of Kwale District between 1902 and 1940'. The early estates were operated by Asians. After independence, the Government began large scale sugar projects in Nyanza and Western Provinces in an attempt to meet the growing local sugar demands which were being supplemented by imports from Uganda.

The Proposed Project

Tembo Farming Limited, herein thereafter referred to as 'the proponent' and/or 'TFL' shall be implemented by The Shah Group. This is a group of companies with global business interests that is owned by the Shah family based in India.

Tembo Farming Limited's nucleus sugarcane plantation is to be established on a 3,300 ha (8,155 acres) of land at Matolani/Lali site in Kilifi County, near Malindi and it will involve setting up a nucleus sugarcane plantation to produce good varieties of sugarcane and become a captive supplier of sugarcane to a nearby sugar complex to be established by another Shah Group Company. The water to irrigate the cane will be abstracted from the adjoining Sabaki River.

Tembo Farming is to be implemented over a period of 3 years at an investment of approximately US$ 35 million and will set up a nucleus sugarcane plantation to supply 372,000 MT cane per annum on a sustainable basis.

Tembo Farming will produce 375,000 MT of sugarcane per annum.

It will also set up a residential colony with uninterrupted power supply, provide clean drinking water and good sanitation, housing, schools, a health care center, a technical training centre, an agricultural training center in collaboration with another group company viz. Tembo Sugar Mills Limited. A Sugarcane Research and Development Centre will be established.

Purpose of study

The importance of environmental protection and conservation measures has been increasingly recognized during the past two decades, world over. It is now generally accepted that economic development strategies must be compatible with environmental goals. This requires the incorporation of environmental dimensions into the process of development. It is important to make choices and decisions that will eventually promote sound development by understanding the environment functions. Irrigation projects invariably result in many far-reaching ecological changes. Such changes benefit human population, while others threaten the long-term productivity of the specific irrigation project, as well as the natural resource base. The undesirable changes are not solely restricted to increasing pollution or loss of habitat for native plants and animals; they cover the entire range of environmental components, such as soil, water, air, energy, and the socio-economic system.

The Kenya Government policy on all new projects, programs or activities requires that an environmental impact assessment is carried out at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, implementation, operation and maintenance and decommissioning of any facility to ensure we have a sustainable environment.

The Government of Kenya classifies water as a basic human right. Water is a finite, vulnerable and essential resource, and therefore should be exploited in a sustainable way that safeguards the resource base for future generations.

The purpose of this study is first and foremost to ensure adequate identification of potentially negative environmental impacts. Secondly, to propose workable mitigation measures, and thirdly to formulate an Environmental Management and Monitoring Plan articulating envisaged impacts and mitigations, to enable the authority make an informed decision.

Methodology

The Environmental Impact Assessment (EIA) was carried out based on field assessments and public consultations with the community neighbouring the proposed Project site, relevant stakeholders and the proponent. Relevant document reviews also took place. The Project Proponent provided the proposed Project design details. The data collection was carried out through structured questionnaires, sampling and testing of environmental parameters, interviews and observations during site visits where necessary in the manner specified in Part V (Regulation 35) of the Environmental (Impact Assessment and Audit) Regulations, 2003. Potential negative impacts and mitigation measures during construction, operation and decommissioning of the proposed Tembo Farming Limited's nucleus plantation were taken into consideration during the study.

In recognition of the requirements of the Environmental Management and Coordination Act (EMCA) Amendments 2015, second schedule part 4 and 8, projects relating to Largescale Agriculture and those relating to Irrigation are classified as those requiring an Environmental Impact Assessment carried out before implementation.

It is against this backdrop that this EIA for TFL was undertaken in accordance with the regulations and guidelines set out by the National Environmental Management Authority (NEMA), as stipulated under sub-section 31-39 of EMCA 1999.

The EIA done was to determine the current status of the environment, environmental considerations for the project in the design phase, operation phase and the decommissioning phase

The EIA evaluated the effectiveness of the environmental considerations undertaken by the project proponents in safeguarding the environment to ensure its sustainability and reduce conflicts with the stakeholders. To this end, questionnaires were administered to gather information on the biophysical and socio-economic aspects of the project. This was also done to determine whether any pollutants are likely to be discharged into the water system from the nucleus sugarcane farm during the operation phase of the project.

The Impact Assessment exercise, questionnaire analysis and report writing was completed in July 2017.

Scope, Objectives and Terms of Reference

Broad objectives of the project

Hiagro (EA) Services Ltd was engaged by TFL to conduct an Environmental Impact Assessment (EIA) study in order to comply with environmental standards, health and safety requirements, the laws of Kenya and best practices internationally acknowledged. The main objective of the assessment was to identify and assess the current and potential environmental impacts that are or will be associated with the construction phase, when the project comes into operation and to design the Environmental Management and Monitoring Plans, and the measures to be undertaken during decommissioning phase. In view of this, negative impacts were identified and mitigation measures put in place to address them and enhance the positive attributes of the project. The project life is envisaged to be over 45 years – the lease years.

The scope

This EIA study was carried out to ensure that the project proponents have fully complied with all legal requirements and that they have complied with their environmental obligation, in order to ensure that the project is sustainable and will ensure inter-generational as well as intra-generational equity in line with principles of sustainable development.

The scope of this study therefore covered the following:

- The farm/plantation infrastructure.
- The river from where the water for irrigation will be tapped
- Future operations of the plantation
- The level of fulfillment of the statutory as well as environmental obligations both to the human and natural environment, by the proponents
- Prediction and wherever possible, quantification of the magnitude and significance of the impacts to the environment including health and safety issues
- Designing cost effective measures for mitigating the negative impacts and enhance the positive impacts.
- Development of a monitoring plan for the project
- Designing an appropriate Environmental Management Plan for ensuring sustainability of the project.
- Conducting an economic as well as social analysis of the project.

The Terms of Reference included:

- Providing a concise description of the project area and its activities by focusing on potential impacts to the surrounding environment.
- Carrying out a systematic EIA for the project following the laid down Environmental Impact Assessment and Audit Regulations, 2002.
- Developing an EIA report that identifies specific impacts and recommend appropriate mitigation measures
- Developing a detailed EMMP for the project.
- Show economic as well as social benefits of the project in the area and the country at large.

Environmental Impacts and Mitigation Measures

Environmental Changes	• Conducting an environmental audit of the project upon its completion. • The farm management should be imparted with necessary skills to monitor environmental and biological changes and the health and safety impacts to both the environment and the people of Matolani • The project proponents shall monitor the project after its completion
Damage to landscape	• Ensure that intake area is landscaped and that a 50m buffer zone along the river is maintained by planting of water friendly trees and grass along the river embankment and on both sides of the intake structure , construction of river embankment structures, as well as re use of soil from trenching activities as a backfill
Water logging	• Adopt on the correct water application to ensure efficient irrigation technologies.

Pollution from use and storage of pesticides, herbicides and fertilizers	• The farm management will review the material safety data sheet for pesticides and herbicides used in the farm • Train workers on use and storage requirements of chemicals and personal protective equipments • Consider and adopt Integrated Pest Management IPM.
Build up of toxins in the soil	• Proper use of chemical and fertilizers at recommended rates • Use of biodegradable farm herbicides, insecticides and fertilizers in the Farm • Explore organic farming options
Increased waste generation	• Recycle and reuse waste including water • Exercising appropriate waste handling and good housekeeping practices and procedures.
Damage to features and materials of archeological importance	• Secure any finds and sites of archeological value and contact the National Museums of Kenya immediately
Disruption of water course	• Stabilization of water courses and river banks after all constructions are complete • Reuse of trenched soils as a backfill when laying the pipelines • Abstract water as per the water permit.
Dust, emissions and other odors and noise	• Use hand tools to do excavation and limit use of heavy machinery • Provide, enforce and use of personal protective equipment • Regularly maintain and wet the farm roads • Maintenance of all farm machinery and tractors as per the servicing schedule • Sprinkling water when dusty conditions set in

Drying of river during low flow	• Control irrigation during extreme droughts. • Consult and join Sabaki River Water resource Users Association, in line with Water Act 2002.
Rising of River bed upstream of the weir	• Carrying out periodic scouring of sediments deposited • Have a river embankment upstream of the intake weir
Rising of water table level adjacent to the weir	• Plant trees and grass to protect soil erosion
Loss of soil fertility	• Practice good agricultural techniques • Practice seed intercropping • Sensitization of community on erosion prevention measures and good agricultural practices • Carry out mulching
Encroachment in the river line area	• Maintain the required riparian reserve along the river • Enforce Agricultural Act on the same • Sensitize community on importance of river line • Plant grass in the river line for stabilization
Increase in Waterborne diseases	• Treat water before using it for potable uses • Wash and cook vegetables • Avoid eating raw foods • Train workers on proper practices and sanitation practices.

Public participation

Interviews were conducted with the stakeholders including the local residents to obtain baseline information related to the construction and commissioning of the TFL project i.e. socio-economic and environmental considerations.

Two Public *Barazas* were held – the first to obtain baseline information and the other to present the findings and collect more community views.

ACRONYMS

ACP-EU	African Caribbean and Pacific-European Union
AIDS	Acquired Immuno Deficiency Virus
ASDS	Agricultural Sector Development Strategy
BOQ	Bill of Quantities
CBOs	Community Based Organizations
CIDP	County Integrated Development Plan
COMESA	Common Market for East and Central Africa
CSR	Corporate Social Responsibility
Dba	Decibels
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
EMS	Environmental Management System
ERC	Energy Regulatory Commission
ESIA	Environmental and Social Management Plan
ESMP	Environmental and Social Management Plan
ETP	Effluent Treatment Plant
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GISP	Global Invasive Species Programme
HIV	Human Immunodeficiency Virus
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
KENHA	Kenya National Highways Authority
KERRA	Kenya Rural Roads Authority
KESGA	Kenya Sugar Cane Growers Association
KIBHS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics

KRDS	Kenya Rural Development Strategy
KSA	Kenya Sugar Authority
KSB	Kenya Sugar Board
KSMA	Kenya Sugar Millers Association
NCCRS	National Climate Change Response Strategy
NEAP	Kenya National Environment Action Plan
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
OGIs	Out-Grower Association
OPS	Open Pan System
OSHA	Occupational Safety and Health Act
PPEs	Personal Protective Equipment
REA	Rural Electrification Authority
S&H	Safety and Health
SACCOs	Savings and Credit Co-operative Societies
SAT	Sugar Arbitration Tribunal
SEPP	Stakeholder Engagement and Public Participation
STI	Sexually Transmitted Infection
TCD	Tonnes Cane Per Day
TDS	Total Dissolved Solids
TSML	Tembo Sugar Mills Limited
TFL	Tembo Farming Limited
VAT	Value Added Tax
VPS	Vacuum Pan System
WHO	World Health Organization
WRMA	Water Resource Management Authority
WWF	World Wildlife Fund

ACKNOWLEDGMENT

The preparation and production of this report has been made through financing by Tembo Farming Limited and we are grateful to the management for their trust. Specifically we thank the Directors for their support throughout the project.

We also acknowledge the co-operation we received from all the stakeholders, neighbours and Project Affected Persons (PAPs) throughout the EIA process.

KIIGE D. K.

August 2017

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1 INTRODUCTION

1.1 Background

Much of the land currently under agriculture is deteriorating due to inappropriate planning, implementation and management. Natural resources, particularly soil and water, are being seriously affected. Soil erosion, desertification, salinization and water-logging reduce productivity and jeopardize long-term sustainability. Agricultural expansion programmes have often encompassed marginal land in many parts of the world. Wise management of the environment requires an ability to forecast, monitor, measure and analyze environmental trends and assess the capabilities of land and water at different levels, ranging from a small irrigated plot to a catchment. Adoption of environmental impact assessment (EIA) will enable to plan water and land use in an integrated manner, avoiding irreversible environmental damage. Contrary to common perceptions, this would lead to higher economic benefits and sustainable resource use.

Irrigation projects invariably result in many far-reaching ecological changes. Some of these changes benefit human population, while others threaten the long-term productivity of the irrigation projects themselves, as well as the natural resource base. The undesirable changes are not solely restricted to increasing pollution or loss of habitat for native plants and animals; they cover the entire range of environmental components, such as soil, water, air, energy, and the socio-economic system. There is therefore need to safeguard such.

In order to predict environmental impacts of any development activity and to provide an opportunity to mitigate against negative impacts and enhance positive impacts, the environmental impact assessment (EIA) procedure was developed in the 1970s. An EIA being; a formal process to predict the environmental consequences of human development activities and to plan appropriate measures to eliminate or reduce adverse effects and to augment positive effects.

Since the 1950's, but gaining momentum mainly in the 1970's, the growing environmental awareness increasingly focussed attention on the environmental impacts of development projects. In many developed nations this resulted in the demand that environmental issues should be explicitly be taken into account in the decision making process. This situation is now present in many developing nations as well.

The Kenya Government policy on all new projects or activities requires an EIA be carried out at the planning stages of the of the proposed undertaking to ensure that significant impacts on the environment are taken into account during the planning, implementation, operation, maintenance and decommissioning phase of the project.

The purpose of environmental Assessment is to determine and present the environmental impacts of a proposed project, plan or policy in such a way that a rational decision can be made about its implementation. Furthermore, the EIA contributes to the reduction or mitigation of adverse impacts by generating a number of project alternatives. These alternatives may comprise alternative sites, alternative processes or alternative implementation schedules. When executed in an early phase of the planning process, EIA may contribute to an optimization of the project design, from both economic and environmental point of view. For this reason, EIA is sometimes referred to as Early Identification of Alternatives. When applied this way an EIA may also contribute to the sustainability of the resources use and environmental soundness of the executed projects.

1.2 The Proposed Project and Justification

The Shah Group, through one of its companies – Tembo Farming Limited ("TFL"), is in the process of establishing Tembo Farming in Kilifi County on a 8,155 (3,300 ha) acres of undeveloped parcel of land, located at Matolani/Lali in Kilifi County near Malindi, Tembo Farming will set up a nucleus sugarcane plantation on a land leased from Express Company Limited, another Shah Group Company.

To be completed in 2019, it will set up a nucleus sugarcane plantation to supply 1,250 tons cane per day on sustainable basis to a sugar complex to meet captive needs of Tembo Sugar Mills Limited.

Tembo Farming aims to supply a sustained 372,500 tons of high quality sugarcane equivalent to approx. 50% of the requirements of Tembo Sugar Mills and over 5% of the total sustained supply in Kenya in 2015 (71,64,790 tones).

It will simultaneously set up a residential colony with uninterrupted power supply and clean drinking water. Tembo Farming will compliment the plan of good sanitation providing for housing, schools, a technical training center, and an agricultural training center to be setup by Tembo Sugar Mills.

It will support setting up of a Sugarcane Research and Development Centre for the development of new varieties of sugarcane, which can give high yields, high sucrose content and are resistant to pests and diseases.

Tembo Farming is estimated to cost app. Kshs 3.5 billion (US$ 35 million) making it the largest single private investment in agro-industry with special emphasis on sugar and renewable energy sector in Kenya and will no doubt be of significant strategic benefit to Kenya considering the savings to be made from meeting the requirements of local demand and safeguarding Kenya from the potentially adverse effects of COMESA regional trade protocols.

Tembo Farming will have a profound impact on Kenya and the Kilifi County, in both social and economic terms. Tembo Farming is in line with Kenya Vision 2030 and MTP II. It will significantly assist the GoK to meet the objectives under the Economic and Social Pillars. It will have a profound impact on Kenya and the Kilifi County, in both social and economic terms.

Tembo Farming will provide direct employment to 600 individuals, which could translate to over 3,000 jobs in Kenya.

With a gross delivered revenue of US$ 14 million, considering a Gross Domestic Product ("GDP") multiplier of 2.35 times, Tembo Farming will contribute to an increase in Kenya's GDP by US$ 33 million, which is an increase of 0.05% of Kenya's GDP in 2015 and considering the Kilifi County GDP at US$ 2.4 billion 1.36% increase in the county's revenue.

Considering the multiplier effect, it will result in an onetime revenue generation during project implementation at US$ 9.45 million and the tax revenue of US$ 8 million from the direct employment generated by Tembo Farming, will cumulate to US$ 121 million by the year 2030.

TSM will have a profound impact on Kenya and the Kilifi County, in both social and economic terms.

1.3 Need for the EIA Study

Due to the unprecedented rate of environmental degradation in Kenya, the Government realized the need to curb the same and this led to the enacted the Environmental Management and Coordination Act, 1999. The Act requires among other things that an Environmental Impact Assessment (EIA) study must be conducted on various categories of projects as particularly outlined in the Second Schedule and section 58 of the Act.

The figure below shows the key activities associated with the sugar sub-sector right from cane production, sugar milling and waste management. The sub-sector like any other development sector is capable of affecting the environment in one way or another. However, the level of environmental risks for this sub-sector is less by far compared to other sectors such as the mining sector. The cultivation and processing of sugarcane can affect the environment through loss of biodiversity during cane farming and water and air pollution at the processing stage.

1.4 Scope of EIA Study

The study has been conducted to evaluate the impacts of the proposed development resulting from its implementation.

The EIA report includes an assessment of impacts of the construction and operations on the following:

- A review of the policy, legal and administrative framework
- Description of the proposed project
- Baseline information (Biophysical and socio-economic environment)
- Assessment of the potential environmental impacts of the proposed project on the biophysical, socio-economic, religious and cultural aspects.
- Development of the mitigation measures and future monitoring plans.
- Occupational Health and safety –OHS

The study has assessed the impacts of the proposed development on the environment in accordance with Kenya Environmental Management and Coordination Act, of 1999 and the Environmental (Impact Assessment and Audit) Regulations, 2003 and the EMCA (Amendment), 2015.

1.5 Terms of Reference (TOR)

The project assessment investigations and analysis of the anticipated environmental impacts of the proposed development are in line with terms of reference stipulated in the Environmental (Impact and Audit) regulations 2003 and in particular part II S 7[1] and which are listed below.

(i) Nature of project.

(ii) The location of the project including the physical environment that may be affected by the project's activities.

(iii) The activities that shall be undertaken during the design of the project and construction and operation.

(iv) The materials to be used, products and by-products including waste to be generated by the project and the methods of disposal.

(v) The potential environmental impacts of the project and mitigation measures to be taken during and after the implementation of the project.

(vi) An action plan for prevention and management of possible accidents during the project cycle.

(vii) A plan to ensure the health and safety of the workers and the neighbouring communities.

(viii) The economic and social cultural impacts to local community and the nation in general.

(ix) The project budget.

(x) Any other information that the proponent may be requested to provide by NEMA.

1.6 Methodology

A comprehensive ESIA was undertaken because of the magnitude and complexity of the issues associated with the proposed sugarcane plantation project. The general steps followed during the assessment included:

- Environment screening, during which the proposed plantation project was identified as among those requiring to be subjected to the ESIA process as stipulated under Schedule 2 of Kenya Gazette Supplement No.74 (Acts No. 5) EMCA amendment, 2015, Environmental scoping that provided the key environmental issues to be considered, Desktop studies and documentary review of relevant reports, legal, institutional and policy frameworks,
- Physical inspection and assessment of the proposed plantation site,
- Analysis of project alternative options,

- In-house consultative meetings with the proponent,
- Comprehensive baseline field environmental assessment,
- Intensive stakeholder engagement and consultations,
- Comprehensive project impact analysis,
- Impact mitigation planning,
- Environmental management planning and preparation of an ESMP,
- EIA report writing.

1.7 Structure of the EIA Study Report

A brief outline of the report is presented as under-

Chapter 1: Introduction.

This Chapter describes the background and rationale for an EIA, scope of the EIA, objectives of EIA, TOR, methodology of the EIA, consultant's compliance and reporting and documentation.

Chapter 2: Project description.

Describes the nature and design components of the Project, proposed Project activities, Project materials and products and estimated Project cost.

Chapter 3: Policy, legal and administrative framework.

This Chapter outlines Government policy on the environment, the relevant legislation relating to the proposed Project and the administrative framework that deal with various aspects of environmental management.

Chapter 4: Baseline environmental setting of the study area.

This section provides a description of the existing environment to achieve an understanding of the environmental setting.

Chapter 5: Public consultation and participation.

It describes the public consultations that took place with the neighbours of the proposed Project site and stakeholders.

Chapter 6 : Identification of activities and potential impacts.

It identifies the potential impacts on the bio-physical and socio-economic environment during construction, operation and decommissioning phases.

Chapter 7: Mitigation measures for the anticipated negative impacts.

The chapter describes the mitigation measures for the anticipated negative impacts identified during construction, operation and decommissioning phases.

Chapter 8: Analyses of Project alternatives.

The Chapter describes the various alternatives that can be applicable to the proposed Project and the reasons for not using them. It also discusses the no project alternatives.

Chapter 9: Environmental management plan.

It describes the measures to be taken and the monitoring requirements and responsibilities for mitigating the potential negative impacts. It also indicates the estimated costs for mitigating the impacts.

Chapter 10: Conclusion and recommendations.

It provides a brief non-technical summary of the report findings and recommendations.

References

Appendices

2 PROJECT DESCRIPTION

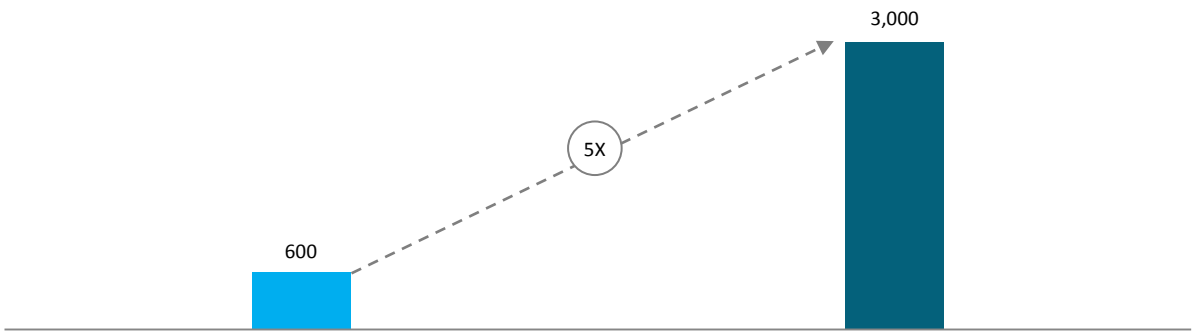
2.1 Introduction

Tembo Farming is to be established on 3,300 ha (8,155 acres) of land at Matolani/Hawa-Wanje site in Kilifi County, near Malindi and it will involve setting up a nucleus sugarcane plantation to produce good varieties of sugarcane. Tembo Farming is to be implemented over a period of 3 years at an investment of app. US$ 35 million and will set up a nucleus sugarcane plantation to supply 372,000 MT cane per annum on a sustainable basis. Tembo Farming will produce 375,000 MT of sugarcane per annum.

Tembo Farming is in line with Kenya Vision 2030 and MTP II. It will significantly assist the GoK to meet the objectives under the Economic and Social Pillars. It will have a profound impact on Kenya and the Kilifi County, in both social and economic terms.

TFM will provide direct employment to 600 individuals, which could translate to over 3,000 jobs in Kenya

Employment by Tembo Farming & Jobs Created in Kenya



With a gross delivered revenue of US$ 14 million, considering a Gross Domestic Product ("GDP") multiplier of 2.35 times, Tembo Farming will contribute to an increase in Kenya's GDP by US$ 33 million, which is an increase of 0.05% of Kenya's GDP in 2015 and considering the Kilifi County GDP at US$ 2.4 billion 1.36% increase in the county's revenue.

Considering the multiplier effect, it will result in an onetime revenue generation during project implementation at US$ 9.45 million and the tax revenue of US$ 8 million from the direct employment generated by Tembo Farming, will cumulate to US$ 121 million by the year 2030.

2.2 Project Location

The project area is identified at Matolani area, Kisiki sublocation, Chakama Location, Magarini Subcounty in Kilifi County. The elevation of proposed area is 139 m above the mean sea level. The site is located about 67 km from Malindi Town.

This coastal subzone runs in a southwest direction from where Sabaki River discharges its fresh water into the Indian Ocean north of Malindi down to the border with Tanzania. This subzone lies in the hot tropical region where the weather is influenced by the great monsoon winds of the Indian Ocean.

This subzone has different characteristics compared to Athi basin. Rainfall distribution, climate suitability and the flat landscape make this subzone one of the suitable areas for sugarcane cultivation and hence ideal for setting up of sugarcane based sugar complex.

The land is presently undeveloped with characteristic ASAL vegetation. Normally nomadic herders from the neighbouring Tana River County traverse the land grazing their livestock.

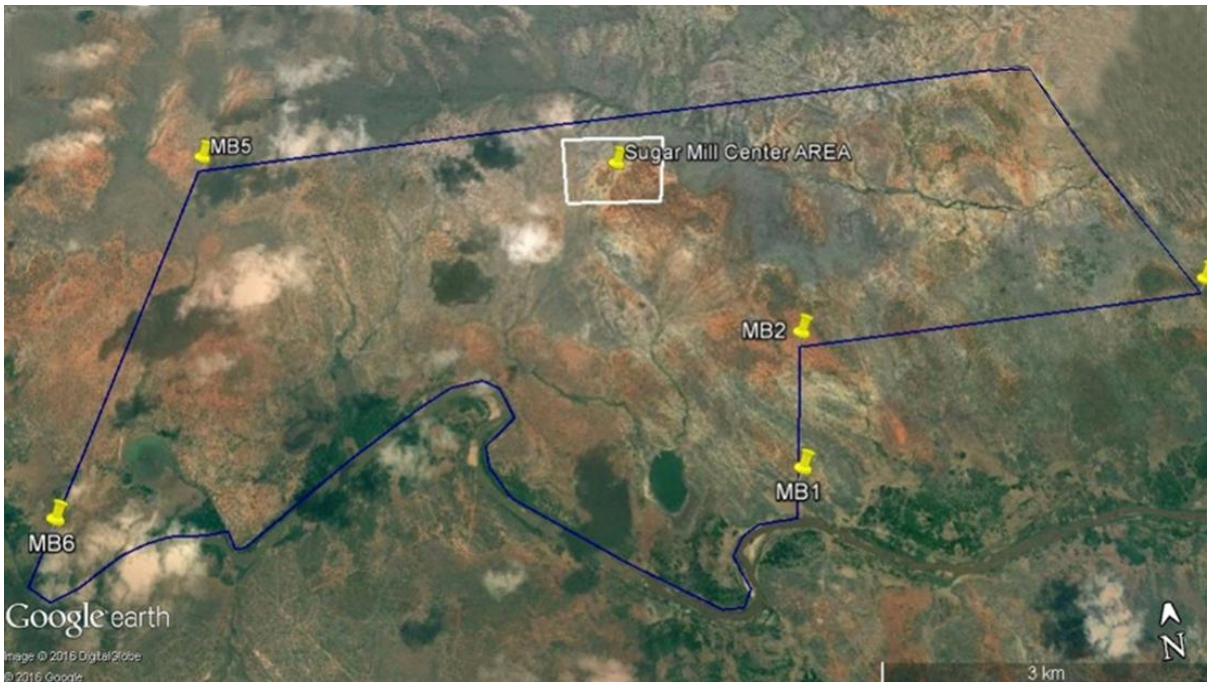


Plate 2-1: Proposed Project Site

The given area lies between S 030°4.187' & E039°32.409' longitudes. The distance between MB1 to MB2 is 1,385.39m, MB2 to MB3 is 4,299.08m, MB3 to MB4 is 3,090.14m, MB4 to MB5 is 9,232.64m, MB5 to MB6 is 4,206.99m. The total area is 3,630.8 Ha (8,971.1 acre). Tembo Sugar Mills land area of 203 acres is part of this total land area and is indicated on the picture above.

2.3 Project Design

The various design components of the farm is as described below. The design details are presented in the farm layout attached herein.

Design outline will include the following:-

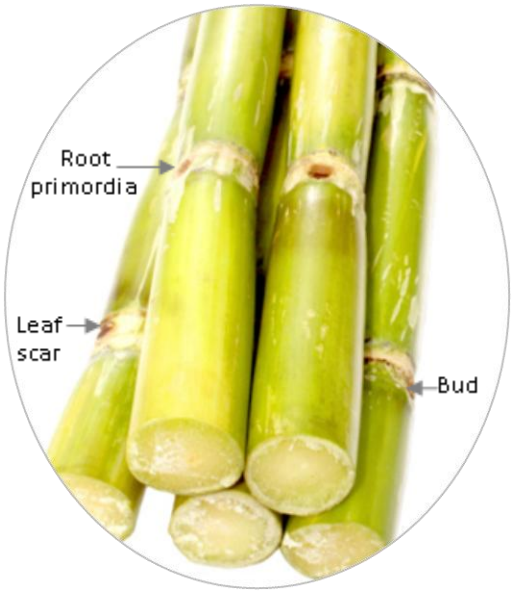
- Two water intake canals from the Sabaki River
- Three water reservoirs and one Operation Reservoir
- Four pumping stations
- Seven irrigation blocks/zones of between 475 – 520 Ha

2.4 Sugarcane and It's Growth Cycle

Introduction

Sugarcane, or cane, is one of the several species of tall perennial true grasses of the genus *Saccharum,* tribe *Andropogoneae*, native to the warm temperate to tropical regions of South East Asia, and used primarily for sugar production. It has stout, jointed, fibrous stalks that are rich in the sugar sucrose, which is accumulated in the stalk internodes. The plant is 2 to 6 m (6.5 feet to 19.75 feet) tall. All sugar cane species interbreed and the major commercial cultivars use complex hybrids. Sugarcane belongs to the grass family Phocaea, an economically important seed plant family that includes maize, wheat, rice, and sorghum, and many forage crops.

Sugarcane Propagation



Sugarcane is a perennial grass very efficient in "harvesting the sun", that is, in converting sun's energy into sugar and fiber. Stem cuttings or sections of the stalks called "setts" or seed pieces propagate sugarcane. Each Sett contains one or more buds. The buds, located in the root band of the node, are embryonic shoots consisting of a miniature stalk with small leaves.

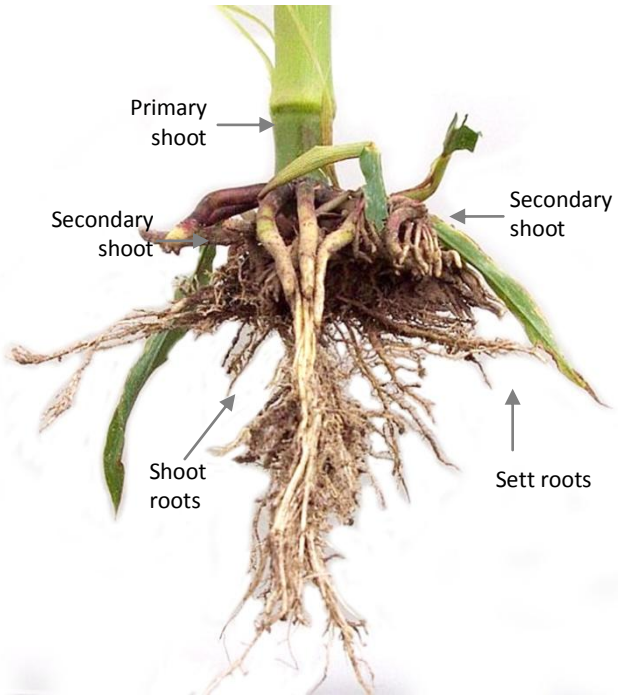
The outer small leaves are in the form of scales. The outermost bud scale has the form of a hood. Normally, one bud is present on each node and they alternate between one side of the stalk to the other.

Variations in size, shape and their characteristics of the bud provide a means of distinguishing between varieties. The bud sprouts under favourable conditions and gives rise to a primary stalk.

During nearly one month after germination, that is, sprouting of the buds, the young plant lives at the expense of the reserves present in the seed piece, and partially using water and nutrients provided for by the first roots.

The Root System

In the commercial sugarcane crop, which is asexually propagated, development of the root system is initiated soon after planting a portion of stem (sett) with atleast one lateral bud.



Shoot roots are second type of root, which emerge from the base of the new shoot 5-7 days after planting .The shoot roots are thicker and fleshier than sett roots and develop in to the main root system of the plant. Sett roots continue to grow for a period of 6-15 days after planting, mostly senescing and disappearing by 60-90 days as the shoot root system develops and takes over supply of water and nutrients to the growing shoot. By the age of 3 months, sett roots comprise less than 2% of root dry mass.

A longitudinal section of a root tip consists mainly of four parts: the root cap, the growing point, the region of elongation, and the region of root hairs. The root cap protects the tender tissues of the growing point as the root pushes through the soil. The growing point consists mainly of an apical meristem, where cell division takes place.

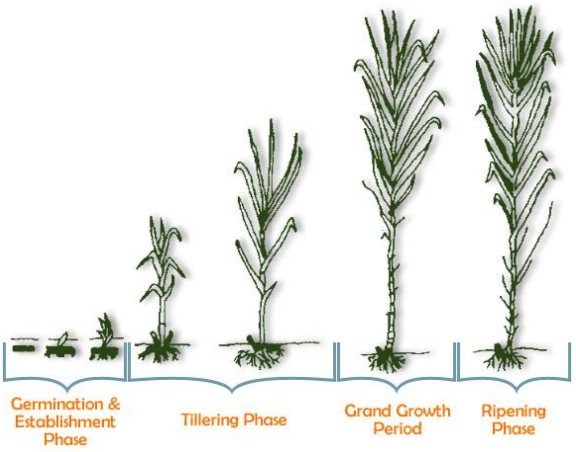
Sugarcane is grown in the world from altitude 36.7° N and 31.0° S, from sea level to 1000m of altitude or little more. It is considered as essentially a tropical plant. It is a long duration crop and thus it encounters all the seasons' viz., rainy, winter and summer during its life cycle.

Principal climatic components that control cane growth, yield and quality are temperature, light and moisture availability. The plant thrives best in tropical hot sunny areas. The "ideal" climate for production of maximum sugar from sugarcane is characterized in a sugarcane matrix.

Crop Growth Phases

Sugarcane has essentially four growth phases namely:-

a. germination phase,
b. tillering (formative) phase,
c. grand growth phase and maturity and
d. ripening phase.



a. Germination and Establishment Phase

The germination phase is from planting to the completion of germination of buds.

Under field conditions germination starts from 7 to 10 days and usually lasts for about 30-35 days. In sugarcane, germination denotes activation and subsequent sprouting of the vegetative bud. Optimum temperature for sprouting is around 28^{o}-30^{o}c. Base temperature for germination is about 12^{o}C. Warm, moist soil ensures rapid germination.

Germination results in an increased respiration and hence good soil aeration are important. Therefore open structured porous soils facilitate better germination.

Under field conditions, about 60 per cent germination can be considered safe for raising a satisfactory crop.

b. Tillering Phase

Tillering starts from around 40 days after planting and may last up to 120 days. Tillering is a physiological process of repeated underground branching from compact nodal joints of the primary shoot. It provides the crop with appropriate number of stalks required for a good yield.

Various factors such as variety, light, temperature, irrigation (soil moisture) and fertilizer practices influence tillering.

Light is the most important external factor influencing tillering. Adequate light reaching the base of the sugarcane plant during the tillering period is of paramount importance.

Temperature around 30^{o}C is considered optimum for tillering. Temperature below 20^{o}C retards tillering.

Early formed tillers give rise to thicker and heavier stalks. Late formed tillers either die or remain short or immature.

Maximum tiller population reaches around 90-120 days after planting. By about 150-180 days, atleast 50 per cent of the shoots die and a stable population is established.

Cultivation practices such as spacing, time of fertigation, water availability and weed control influence tillering. Though 6-8 tillers are produced from a bud, ultimately only 1.5 to 2 tillers per bud remains to form canes. Ratoon crop gives much higher and early tillering than a plant crop.

Encouraging good tillering is important to build adequate population.

c. Grand Growth Phase

Grand growth phase starts from 120 days after planting and lasts up to 270 days in a 12-month crop. During the early period of this phase tiller stabilization takes place. Out of the total tillers produced only 40-50% survive by 150 days to form millable cane.

Most important phase of the crop wherein the actual cane formation and elongation and thus yield build up takes place.

Leaf production is frequent and rapid during this phase with Leaf Area Index (LAI) reaching around 6-7.

Under favourable conditions stalks grow rapidly almost 4-5 internodes per month.

Drip irrigation, fertigation and warm, humid and sunny climatic conditions favour better cane elongation. Moisture stress reduces internodal length. A temperature around 30^{o}C with humidity of around 80% is most conducive for good growth.

d. Ripening and Maturation Phase

Ripening and maturation phase in a twelve-month crop lasts for about three months starting from 270-360 days.

Sugar synthesis and rapid accumulation of sugar takes place during this phase and vegetative growth is reduced.

As ripening advances, simple sugars (monosaccharide viz., fructose and glucose) are converted into cane sugar (sucrose, a disaccharide).

Cane ripening proceeds from bottom to the top and hence bottom portion contains more sugars than the top portions.

Ample sunshine, clear skies cool nights and warm days (i.e., more diurnal variation in temperature) and dry weather are highly conducive for ripening

2.5 Tembo Farming Activities

Planting and Harvest

Extending the factory-crushing period in a given area reduces the resources required per day. On the other hand, the best harvesting period should be set during the dry period. Executing the harvest during dry period has two main objectives: traffic control at the field end with a significant reduction on soil compaction, and sugar accumulation throughout drought conditions.

At the proposed Tembo Farming, the climatic rainfall data shows 2 rainy seasons, short one from September – November and the main one from March to July. During the heavy rain period, the harvesting would be difficult. Overall, the available harvesting days will be around 300 days.

Planting can take place throughout the entire year (Except rainy period).

Crop Water Requirement

The crop water requirement is the sum of the crop age and the current month ETo. The table below shows the water requirements for every crop planted in different month of the year (left Colum) and the amount of water that it will require during its 12 months cycle.

TABLE 2-1: INFIELD IRRIGATION - DAILY REQUIREMENT PER MONTH OF THE YEAR PER MONTH OF PLANTING

Phenological growth phases	Planting/ Germination			Tillering		Grand growth					Ripening
Crop kc values	0.45	0.55	0.65	0.70	0.75	0.80	0.85	0.90	1.00	1.05	1.05	0.60
	Month of Year Irrigation (mm/day)											
Planting Month	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Jan	2.3	2.5	2.1	1.2	0.7	0.0	2.0	3.2	1.9	1.0	2.1	2.2
Feb	3.1	2.1	1.8	1.2	0.6	0.0	1.9	3.0	1.7	1.2	2.1	3.9
Mar	5.4	0.0	1.5	1.0	0.6	0.0	1.8	2.8	1.6	1.1	2.0	3.9
Apr												
May												
Jun												
Jul	4.4	4.1	3.3	1.9	1.0	0.0	1.1	1.9	1.2	0.9	1.5	2.9
Aug	4.1	3.9	2.9	1.8	1.0	0.0	1.4	1.6	1.0	0.8	1.4	2.8
Sep	3.9	3.7	2.8	1.6	0.9	0.0	2.5	2.1	0.9	0.7	1.3	2.6
Oct	3.6	3.5	2.6	1.5	0.8	0.0	2.5	3.7	1.1	0.6	1.1	2.4
Nov	3.4	3.2	2.4	1.4	0.8	0.0	2.4	3.7	2.0	0.7	0.9	2.0
Dec	2.8	3.0	2.3	1.3	0.7	0.0	2.1	3.5	2.0	1.3	1.2	1.7

From the table we can see that cane planted in March once it reaches full development at 9 – 10 months of age will have the highest water demand of 5.4 mm/day around January.

Taking into consideration the water demand and the soil's physical properties, Tembo Farming will use compensated drip lines at a flow rate of 1 l/h at 0.5m spacing, assuming 1.9m between one drip line to the next, the application rate, 1.05mm/h can supply the demand in 5 hours and the system can work in 4 shifts.

The following table describes the system's envisaged parameters:

TABLE 2-2: INFIELD IRRIGATION DESIGN PARAMETERS			
Project area (ha)	3,300	Application rate (mm/h)	1.05
Cluster / Sub-area (ha)	150	Flow rate per hectare (m^3/hr/ha)	10.53
Dripper Flow rate (l/h)	1.00	Total flow rate (m^3/shit/hr)	394.7
Dripper's Spacing - between lines (m)	1.90	Number of Shifts	4
Dripper's Spacing - between drippers (m)	0.50	Total irrigation time (hr/day)	20:39
Daily time available for irrigation (hr)	21.0	Shift operation time (hr)	5:09
System efficiency (%)	95%	Actual use of available time	98%
Addition due to flushing salts (mm/day)	0	Max. application in 24 hr (mm)	6.32
Crop max demand (mm/day)	5.4	Average Shift size (ha)	38

Water Requirement Working

Planting Month	ETO (mm/ month) (A)	Rainfall (mm/ month) (B)	Net water balance (mm/ month) (B-A)	Effective rain (mm/ month)	Planting/ harvesting	Daily Water balance w/o KC (mm/ month)	Max Irrigation demand (mm/day)
Jan	122.3	-	-122.3	-	1	-3.9	5.4
Feb	129.6	-	-129.6	-	1	-4.6	4.1
Mar	146.3	22.9	-123.4	2.0	1	-4.0	3.3
April	129.8	28.6	-101.2	7.0	1	-3.4	1.9
May	131.1	430.9	299.8	175.0	-	9.7	1.0
Jun	104.0	48.7	-55.3	20.0	-	-1.8	-
Jul	104.2	83.9	-20.3	40.0	1	-0.7	2.5
Aug	111.9	30.2	-81.7	8.0	1	-2.6	3.7
Sept	112.7	6.0	-106.7	-	1	-3.6	2.0
Oct	120.6	80.2	-40.4	39.0	1	-1.3	1.3
Nov	118.8	61.0	-57.8	26.0	1	-1.9	2.1
Dec	115.4	3.9	-111.5	0	1	-3.6	3.9
Sum	1,446.7	796.3	-650.4	384.0	10	-21.8	31.2
Max	146.3	430.9	299.8	175.0	1	9.7	5.4
Average	**120.6**	**66.4**	**-54.2**	**32.0**	**1**	**-1.8**	**2.6**

Max Irrigation Demand (mm/day)	5.4
Max Irrigation Demand (m^3/ha/day)	54
Plantation area (ha)	3300
Max irrigation demand (m^3/day) - (A)	178200
Available time for irrigation (hr)	20
Available time for irrigation (sec) - (B)	72000
Max water requirement (m^3/sec) - (A/B)	2.475
Safety sector	0.247
Max water requirement (m^3/sec)	2.722

Irrigation Water Quality

The water analysis results show that all the parameters tested are below the minimum threshold values that are required in terms of technical aspects, to prevent problems such as clogging, without creating any problems in the soil from the plant's physiological aspect.

The required threshold values and the project water are presented in the table below:

Parameter	WHO Standards	KS 459-1:2007 3rd Edition	Project water
Physical Tests			
pH	6.5-8.5	6.5-8.5	7.52
Turbidity (NTU)	5	<5	35.1
Colour (Pt. Co. APHA)	15	15 TCU	1014
Total Suspended Solids (mg/l)	68	Nil	Nil
Total Dissolved Solids (mg/l)	1500	1000	778
Conductivity (micro siemens/cm)	NS	NS	556
Chemical Tests			
Ca ($CaCO_3$ Mg/L)	100	150	2.36
Phenolphthalein Alkalinity (mg/l)	NS	NS	ND
Ammonia (NH_3 mg/l)	1.5	0.5	1.44
Copper(Cu mg/l)	2	1	ND
HCO_3 ($CaCO_3$ mg/L)	500	NS	122
Iron (Fe mg/l)	0.3	0.3	0.64
Zinc (Zn mg/l)	3	5	0.15

Parameter	WHO Standards	KS 459-1:2007 3rd Edition	Project water
Manganese (Mn mg/l)	O.1	0.5	0.204
Chromium (Cr mg/l)	0.05	0.05	0.005
Chloride (Cl mg/l)	250	250	54
Floride (Fl mg/l)	1.5	1.5	0.70
Sulphate (SO_4 mg/l)	450	400	29
Phosphate (P mg/l)	NS	2.2	1.74
Other Parameters			
Total Hardness	500	300	32
Calcium Harness (mg/l)	NS	NS	5.89
Manganese Hardness (mg/l)	NS	NS	24.48
Silica (SiO_2 mg/l)	NS	NS	20.1
Aluminium	0.1	0.1	ND
Potassium	15.9	NS	NS
Lead	0.01	0.01	0.005

Yield Potential

Sugarcane yield potential is determined by the local climate and soil conditions. The yields (ton/ha) and mainly sugar content (kg/ton of cane) vary according to the month of planting. The project soil and climate in general show good cane growing conditions. Under such conditions, Tembo Farming estimates the yield at around 130 – 150 ton/ha under best growing practice. Crop time expected to be 6 (plant + 5 ratoon) years before replanting.

Varieties Selection

Tembo Farming will be planting those varieties, which are well tested in the coastal belt by KESREF. Following are the list of variety of cane crop which are used in Kenya.

Cane Variety	Total Area (ha)	Percentage
CO 331	9	-
CO 421	89,322	40
CO 945	45,420	20
CO 1148	183	0
D 84-84	1,499	1
D 60 - 163	2	0
EAK 73-335	981	0
EAK 70 - 97	632	0
CO 617	39,557	18
CB 38 - 22	2,613	1
KEN 82-216	20	0
KEN 82-808	1,337	1
KEN 82-472	524	0
KEN 82-247	2	0
KEN 83-737	12,999	6
N 14	19,716	9
Others	8,789	4
Total	**2,23,605**	**100**

Tembo Farming intends to work in close coordination with KESREF to plant early maturity, high yielding cane crop, suitable for project location.

2.6 Manpower and Crop Mechanization

A major and critical factor for the success of such a project is the level of mechanization, mainly for the planting and the harvesting systems.

Planting – there are 3 planting options: manual, semi-mechanized and fully mechanized. Tembo Farming has planned to implement mechanized form of planting, considering the size and nature of the land.

Harvesting – in vision to the future, the new installation is planned to be fully mechanized; burning cane will be prohibited.

3 LEGAL AND POLICY FRAMEWORK

3.1 Introduction

The importance of environmental protection and conservation measures has been increasingly recognized during the past two decades. It is now generally accepted that economic development strategies must be compatible with environmental goals. This requires the incorporation of environmental dimensions into the process of development. It is important to make choices and decisions that will eventually promote sound development by understanding the environment functions. The United Nations Conference on Environment and Development (UNCED) in its Agenda 21, Chapter 18: Protection of the Quality and Supply of Freshwater, underscored the importance of environmental protection and conservation of the natural resource base in the context of water resources development for agriculture and rural development.

According to the Sections 58 And 138 Of the Environmental Management and Coordination Act (EMCA) No. 8 of 1999 and section 3 of the environmental (Impact assessment and Audit) Regulations 2003 (Legal No.101), exploitation of water resources require an EIA Project/ Study Report prepared and submitted to NEMA for review and eventual licensing before the development commences. This is to ensure sustainable development (*ability of the present generation to utilize its natural resources without putting at risk the ability of future generations to do likewise*).

Policy framework

It aims to integrate environmental issues into the country's development plans. Its main objectives include:

a) Meeting of national and international goals through conservation of bio-diversity, prevention of desertification, protection of ozone layer and mitigation of disaster events.

b) Sustainable use of natural resources as well as water resources to improve the quality of human environment

c) Integrating environmental conservation into economic activities to the process of sustainable development

d) Optimization of use of natural resources in improving the quality of human environment

The legal framework

The applicable laws relating to largescale agricultural and irrigation projects like TFL include those on:

i. Soil erosion
ii. Public health
iii. Endangered species
iv. Protected areas
v. Water quality
vi. Water rights
vii. Cultural, historical, scientific and archeological sites
viii. Land use and resettlement
ix. Air quality

Through the enactment of Environmental Management and Coordination Act (EMCA) of 1999, the legal and institutional framework for environmental management was strengthened. The Act provides for the establishment of a National Environment Management Authority (NEMA). It became operational in July of year 2002. The Authority is a statutory body mandated to coordinate all environmental and development related activities.

The Environmental Impact and Assessment guidelines and regulations of year 2003 provide the basis and procedures of carrying out EIA's and EA's.

The EMCA and other relevant National laws that govern the environment, health and safety issues, in relation to agricultural and irrigation, where they conflict, the Act becomes supreme.

3.2 Environmental Legal Framework

Environmental Management and Co-ordination Act, 1999 (Amendment, 2015)

Environmental Management and Coordination Act No. 8 of 1999, provides a legal and institutional framework for the management of environmental related themes.

This is an Act of Parliament to provide for the establishment of an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto.

Part **7** on Environmental Audit and Monitoring section 68 and 69 specifically detail the need to undertake Environmental Impact Assessments of all projects likely to cause negative impacts to the environment.

Further Part **5** of the Environmental (Impact Assessment and Audit) Regulations 2003; detail the guidelines for the Environmental Impact Assessment.

It is therefore mandatory that an Environmental Impact Assessment must be undertaken by proponents of all proposed projects to ensure that the activities of the proposed project comply with all the legal and institutional frameworks that are in place to safeguard and protect the environment.

The Agriculture Act

Cap 318 of this Act provides, part IV discuses about the preservation of soil and its fertility the act states that there should be a legislative control over soil conservation and land management. The clearing of vegetation from steep slopes or in areas next to water courses without authorization is strictly forbidden. The Ministry of Agriculture can impose land conservation orders to control cultivation, grazing and clearing of vegetation:

Basic Land Usage rules

The rules apply to plots and lands used for cultivation. They cover areas such as protection of sloppy lands, watercourses and against soil erosion by run-off water. They states that:

a) **Protection of land with slope exceeding 20 % and 12 %**

   Any person who cultivates any land of which the slope exceeds 12 percent, when the soil is not protected against erosion shall be guilty of offence

b) **Protection**

   Any person who cultivates and destroys the soil or cuts down any vegetation or grazes livestock on any land lying within 2m of a watercourse or in the case of a watercourse more than 2m wide within a distance equal to the width of that watercourse to a maximum of 30 m shall be guilty of offence

Crop Production and Livestock Act CAP 321

The purpose of the crop production and Livestock Act is to regulate the quantity of land that can be utilized for food crops or livestock production; what type of crops to be grown in which areas, etc.

The Water Act

This is an Act of Parliament to provide for the management, conservation, use and control of water resources, and or the acquisition and regulation of rights to water use; to repeal the Water Act (Cap 372) and certain provisions of the Local Government Act; and for related purposes.

Part **II**, section 18, of the Water Act 2002 provides for national monitoring and information system on water resources**.** Following on this, sub section 3 allows the Water Resources Management Authority **(**WRMA) to demand from any person or institution, specified information, documents, samples or materials on water resources. Under these rules, specific records may require to be kept by a facility operator and the information thereof furnished to the authority.

The water Act Cap 372 vests the rights to all water to the state, and the power for the control of all body of water with the minister, the powers is exercised through the Minister and the Director of water resources in consultation with the water catchments boards. Water Act 2002 is pivotal for all water activities. It provides for the conservation, control, apportionment and use of available water resources. It provides for:

a) Provision of sufficient drainage works for the delivery of used and unused water to a water course or body from irrigated land
b) Obtaining of water permits for irrigation
c) Revision or variation and cancellation of water permits
d) Penalty for waste dumping
e) Penalties for polluting water used for human consumption

Water Rules 2006

To operationalize the Water Act 2002, the Water Resources Management Authority has developed water rules and regulations. It has already come up with the water rules, which have already been gazetted. The rules cover the following areas:

a) The reserve, protected areas, swamps, wetlands and riparian areas. They have also incorporated the means through which we can protect these fragile water resources and related environment.

Other areas that these rules cover include:

b) Threshold levels for water allocation

c) Harmonization of water permitting fees and water use charges for different permits

d) Provide the Water Resources Management Authority (WRMA) with powers to place control orders, to stop destruction and anti-social behaviour which are detrimental to our water resources.

e) Formulation of Catchments Management Strategies (CMS) including the zoning of catchments

f) Re-enforce and separate functions between different water sector institutions

g) Promote decentralization of decision making

h) Promote participation and offer channels through which civil rights issues can be addressed.

i) Provision of participation of management of water resources by the community members.

The Land Act 2012

This may be termed as "AN ACT of Parliament to give effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land based resources, and for connected purposes. Some of the issues in this act emphasize more on;

Community Interest and Benefit Sharing

To protect community interests over land based Natural Resources and facilitate benefit sharing:

- A legal framework shall be established for recognizing community and private rights over natural resources and put in place procedures for use of and access to these resources by communities and private entities;

- Devise and implement participatory mechanisms for compensation for loss of lives and damage to property occasioned by wild animals;
- Establish mechanisms for the sharing of benefits emanating from natural resources by the people of Kenya and by use of participatory methods, define benefit sharing criteria for natural resources within the contiguous to the jurisdiction of local communities;
- Ensure that the management and utilization of land based natural resources by community entities take into account the need to share benefits with contiguous communities and that such communities are fully involved in the management and development of the resources;
- Encourage the development of wildlife sanctuaries and conservancies and involve local communities in the co-management of parks with communities living contiguous to the parks and protected areas. It shall also provide mechanism for resolving grievances of communities arising from human-wildlife conflict; and
- Recognize and protect the rights of forest dependent or other Natural Resources dependent communities and facilitate their access, co-management and derivation of benefits from the Resources.

The Lakes and Rivers Act

Cap 409 makes the provision for the protection of birds and other wildlife in the lakes or rivers.

The Public Health Act

Cap 242, section 115 states that, no person or institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires local authorities take all lawful action, necessary and reasonably practicable measures to maintain in their jurisdiction, clean and sanitary conditions to prevent occurrence of a nuisance or conditions liable to be injurious to human health.

Under section 118, they include: waste pipes, surface drains, sewer drains, refuse pits constructed or located in such a state as in the opinion of a medical officer of health to be offensive or injurious to health. Any noxious matter or waste water flowing or discharged from any premises into a public street or into the gutter or side channel, water course, irrigation channel or bed not approved for discharge is so deemed as a nuisance. Others include accumulation of materials or refuse, which in the opinion of the medical officer of health is likely to harbour rats or vermin.

Section 129 of the said Act states that "it shall be the duty of every local authority to take all lawful, necessary and reasonably practicable measures for preventing any pollution dangerous to health of any water supply in which the public within the district has a right to use and does use for drinking or domestic purposes.

Section 136 states that all collections of water, sewage, rubbish, refuse and other fluids, which permit or facilitate the breeding or multiplication of pests, shall be deemed to be nuisances and are liable to be dealt with as provided in the Act.

The pest control products Act

All the chemicals used in any agricultural undertaking must be registered by the pest control products board. All pest control products sold in Kenya must bear a label showing a PCPB registration number. Cap 346 of the Act provides for the number of pesticides banned in Kenya. All pesticide storage and handling arrangements must be inspected and licensed under this Act.

Other relevant legislation

- Irrigation Act Cap 320
- Penal code Cap 63
- Food, drugs and other chemical substances Act Cap 254
- Seeds and plant varieties Act Cap 326
- Agriculture produce and marketing Act Cap 320

- Fertilizer and food stuffs Act Cap 345
- Use of poisonous substances Act Cap 247
- Malaria prevention Act Cap 246
- Local Government Act Cap 265

3.3 Administrative framework

The National Environment Management Authority (NEMA)

It exercises general supervision and coordination over all matters relating to the environment and is the principal organ of Government in implementation of all policies relating to the environment. The EMCA Act provides for the establishment of Standards and Enforcement Review Committee (SERC)

The National Environmental Council (NEC)

It's responsible for policy formulation and direction. The council also sets national goals and objectives and determines priorities for protection of the environment

County Environment Committees

They are decentralized structures involved in environmental stewardship. They enable the local community participation. It has diverse membership

Public Complaints Committee

The EMCA provides for its establishment, it provides the administrative mechanism for addressing environmental issues. It has a mandate of investigating complaints relating to environmental damage and degradation. It has diverse membership

3.4 Regulatory framework

The Environmental Impact Assessment and Audit Regulations

Regulation No. 3 states that "the regulations shall apply to all policies, plans, programmes, projects and activities specified in Part IV, V and the second schedule of the Act". Irrigation projects like the proposed TFL project fall under such projects.

Regulation 4 subsection 1 states that no proponent shall implement a project where:

- It's likely to have negative environmental impacts
- And for which an EIA is required under the Act or these regulations

Standards and Enforcement

It is the duty of the Standards and Enforcement Review Committee (SERC) to draw up the standards on the following

- Chemicals
- Land use
- Biodiversity
- Water quality
- Waste quality
- Economic instruments

It important to note that some of these standards have already been gazetted e.g. on water quality and waste management.

Water Quality Standards

To operationalize the Water Act and the Water Quality Regulations, 2006, WRMA and NEMA have set the guidelines water quality standards for domestic water sources and for irrigation water. The tables below summarize the limits for different parameters in the water.

Table 3-1.: Guideline Standards for Water Quality of Domestic Water Sources

Parameter	Guide Value (Max. Allowable)
pH	6.5-8.5
Suspended Solids (SS)	30 mg/L
Conductivity (25^{o}C)	1500 µS/cm
Nitrate (NO_3)	10 mg/L
Ammonia (NH_3)	0.5 mg/L
Nitrite (NO_2)	3.0 mg/L
Total Dissolved Solids (TDS)	1,200 mg/L
E.Coli (Coliforms)	NIL/100 ml
Fluoride (F)	1.5 mg/L
Phenols	NIL (mg/L)
Arsenic (Ar)	0.01 mg/L
Cadmium (Cd)	0.01 mg/L
Lead (Pb)	0.05 mg/L
Selenium (Se)	0.01 mg/L
Sulphates (SO_4)	400 mg /L
Sodium Absorption Ratio	6.0
Copper (Cu)	0.05 mg/L
Zinc (Zn)	1.5 mg/L
Alkyl benzyl sulphonates	0.5 mg/L
Permanganate Value	1.0 mg O_2/L

Table 3-2.: Microbiological limits for drinking water and containerized water

Type of microorganism	*Drinking Water*	Containerized Water
Total viable counts at 37^{o}C ppm, max	100	20
Coliforms in 100 ml	NIL	NIL
E. coli in 100 ml	NIL	NIL
Staphylococcus aureus in 50 ml	NIL	NIL
Sulphite reducing anaerobes in 50 ml	NIL	NIL
Pseudomonas aeruginosa fluorescence in 100 ml	NIL	NIL
Streptococcus faecalis	NIL	NIL
Shigella in 100 ml	NIL	NIL
***Salmonella* in 100 ml**	NIL	NIL

Table 3-3.: Physical Water Quality Guidelines for Irrigation water

Parameter	Permissible Level
pH	6.5-8.5
Aluminum (Al)	5 mg/L
Arsenic (Ar)	0.1 mg/L
Boron (Bo)	0.1 mg/L
Cadmium (Cd)	0.5 mg/L
Chloride (Cl)	0.01 mg/L
Chromium (Cr)	1.5 mg/L
Cobalt (Co)	0.1 mg/L
Copper (Cu)	0.05 mg/L
E. Coli	NIL/100 ml
Fluoride (F)	1.0 mg/L
Iron (Fe)	1.0 mg/L
Lead (Pb)	5 mg/L
Selenium (Se)	0.19 mg/L
Sodium Absorption Ratio (SAR)	6.0 mg/L
Total Dissolved Solids (TDS)	1200 mg/L
Zinc (Zn)	2 mg/L

Table 3-4.: Microbiological Water Quality Guidelines for Irrigation water

Reuse Condition	Exposed Group	Intestinal Nematodes (MPN/L)	Coliforms (Mpn/100 ml)
Unrestricted Irrigation (crops likely to be eaten uncooked)	Workers and Consumers	< 1	<1000
Restricted Irrigation (Cereal crops, industrial crops, fodder crops, and pasture)	Workers and Consumers	< 1	No standard recommended

Table 3-5.: Guideline values for raw water

Coliforms organisms (number / 100ml)	
0-50	Bacterial quality requiring disinfection only
50-5,000	Bacterial quality requiring full treatment (coagulation, sedimentation, filtration and disinfection)
5,000-50,000	Heavily polluted, requiring extensive treatment
Greater than 50,000	Very heavily polluted, unacceptable as source unless no alternatives exists. Special treatment needed/

Source: (Adopted Water Practice Manual, 2005, Ministry of Water and Irrigation)

3.5 ISO 14001 certification

International Standards organization (ISO) is a worldwide federation of national bodies. It aims to contribute to making development, manufacturing and supply of products and services more efficient, safer and cleaner. It's a good technical base for countries on health, safety and environmental registration.

Its main aim is support in environmental protection and protection against pollution, balanced with socio-economic needs of countries.

Its main goals include:

- Continuous improvement of environmental management system and environmental performance of organizations
- Compliance to legislation and demands set by the organization

ISO 14001 is a voluntary standard that provides guidance on the development and introduction of that system. Within the standards are the Environmental Management systems (EMS), which is a part of an overall management system consisting of:

a. Organizational structure
b. Planning activities
c. Responsibilities
d. Practices
e. Procedures
f. Processes and resources for:
    i. Developing
    ii. Implementing
    iii. Reviewing and
    iv. Maintaining the environmental policy

The EMS should therefore cover;

a) Environmental policy
b) Planning, implementation and operation corrective actions
c) Management review

The EMS is supported by the following procedures and instructions:

Organizational responsibilities, communication, training, management manual, production of registers, non-compliance and corrective actions, complaints, records and archiving and document control.

Therefore, an organization wishing to have ISO 14001 provides written evidence showing that each of the above procedures is operational and established.

3.6 International treaties and conventions

Kenya has ratified numerous international treaties and conventions. The relevant treaties include, but are not limited to:

a) Convention on wetlands of international importance and water fowl habitat. This dictates wise use of wetlands and their resources

b) Vienna convention for the protection of ozone layer. It encourages interGovernmental cooperation on research, systematic observation of the ozone layer, monitoring of CFC's production and exchange of information.

c) Montreal protocol on substances that deplete the ozone layer. It gives guidelines on phase out of ozone depleting substances on the basis of periodic scientific and technological assessments.

d) Kyoto protocol. In this protocol, the developed nations agreed to limit their greenhouse gas emissions, relative to 1990 levels and are pursuant to the United Nations Framework Convention on Climate Change of 1992.

e) The International Trading Rules and Persistent Organic Pollution Convention (POP's). it identifies twelve groups of substances which have been either banned or whose use or production is severely restricted

f) Convention on Biological Diversity. It aims at conservation of biological diversity and sustainable use of its components, fair and equitable sharing of benefits accruing from utilization of genetic resources.

3.7 African Convention on the Conservation of Nature and Natural Resources

General

The convention established on African Convention on the conservation of nature and natural resources

Main requirements

a. Improved soil conservation and introduce improved farming methods, which will ensure long term productivity of the land.

b. Control erosion caused by various forms of land use which may lead to loss of vegetation cover.

c. Prevent and control water pollution

d. Protect flora and ensure best utilization and development and conserve threatened and or special scientific or aesthetic value, plant species or communities.

e. For protection of fauna resources, Kenya is required to manage wildlife populations inside designated areas and manage aquatic environment with a view of minimizing deleterious effects of any water.

4 ENVIRONMENTAL BASELINE DATA

4.1 Location and Landscape

Kilifi County is one of the six counties in Coast region. The county lies between latitude 2.20°and 4.0°South, and between longitude 39.05° and 40.14°East. It borders Kwale County to the southwest, Taita Taveta County to the west, Tana River County to the north, Mombasa County to the south and Indian Ocean to the east. The county covers an area of 12,609.7 km2.

The main economic activities are agriculture (cashew nuts and horticulture), fishing, forestry, mining (52.7%), rural self-employment (29.1%), wage employment 8.8% and urban self-employment (9.4). It has seven administrative sub-counties namely; Kilifi South, Kilifi North, Ganze, Malindi, Magarini, Kaloleni and Rabai.

The proposed TFL project site is in Magarini Sub-County, Chakama Location, Matolani. The land lies generally in an agricultural area with most of the neighbours being small scale farmers who have settled along River Sabaki and a few nomads grazing on the vast undeveloped tracks of land. The elevation of proposed area is 139 m above the mean sea level. The proposed project site has total area of 203 acres. The site is located about 67 km from Kilifi town.

This coastal subzone runs in a southwest direction from where Sabaki River discharges its fresh water into the Indian Ocean north of Malindi down to the border with Tanzania. This subzone lies in the hot tropical region where the weather is influenced by the great monsoon winds of the Indian Ocean.

This subzone has different characteristics compared to Athi basin. Rainfall distribution, climate suitability and the flat landscape make this subzone one of the suitable areas for sugarcane cultivation and hence ideal for setting up of sugarcane based sugar complex.

4.2 Climate

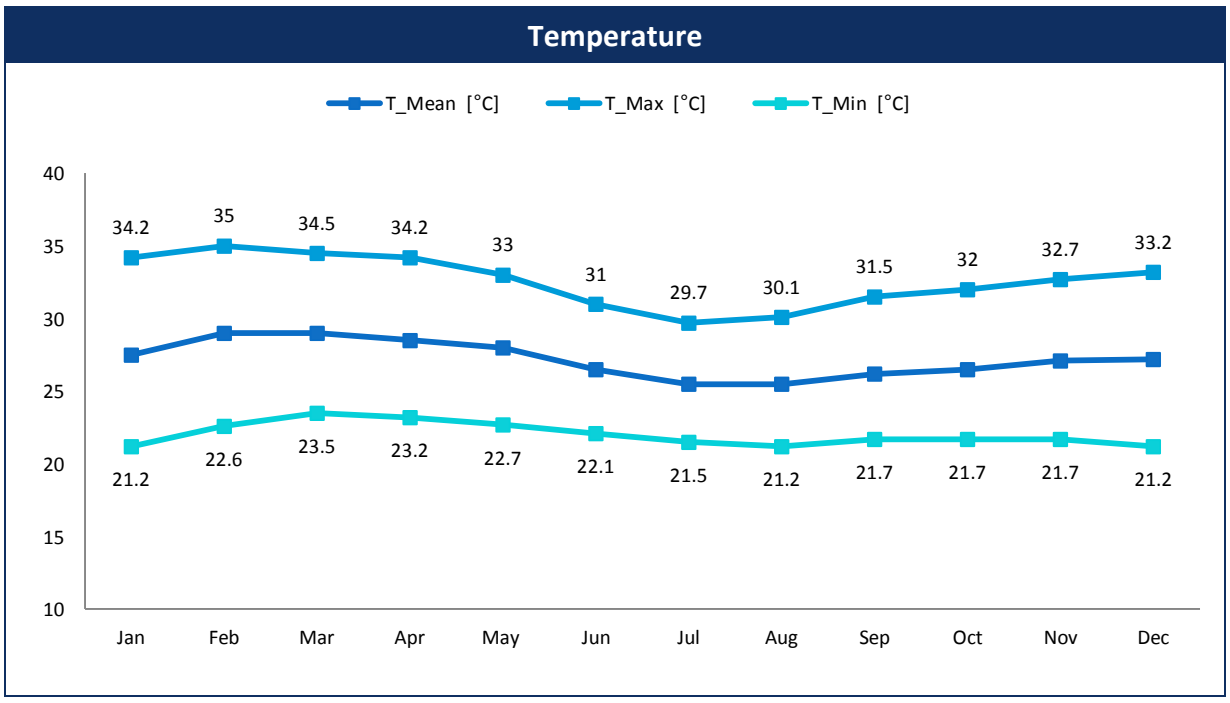
The climate in Kilifi County and that of the proposed project site is generally associated to the regional climatic patterns attributed to the semiannual movement of the inter-tropical convergence zone (ITCZ) as well as the two monsoons experienced in the area, namely, the northeastern monsoon (kazkaz) in January to March and the southeastern monsoon in June October.

Temperature

Optimum temperature required for sugarcane growth is between 22° and 30°C. Minimum temperature for active growth is approximately 20°C.

Temperatures above 38°C reduce the rate of photosynthesis and increase respiration.

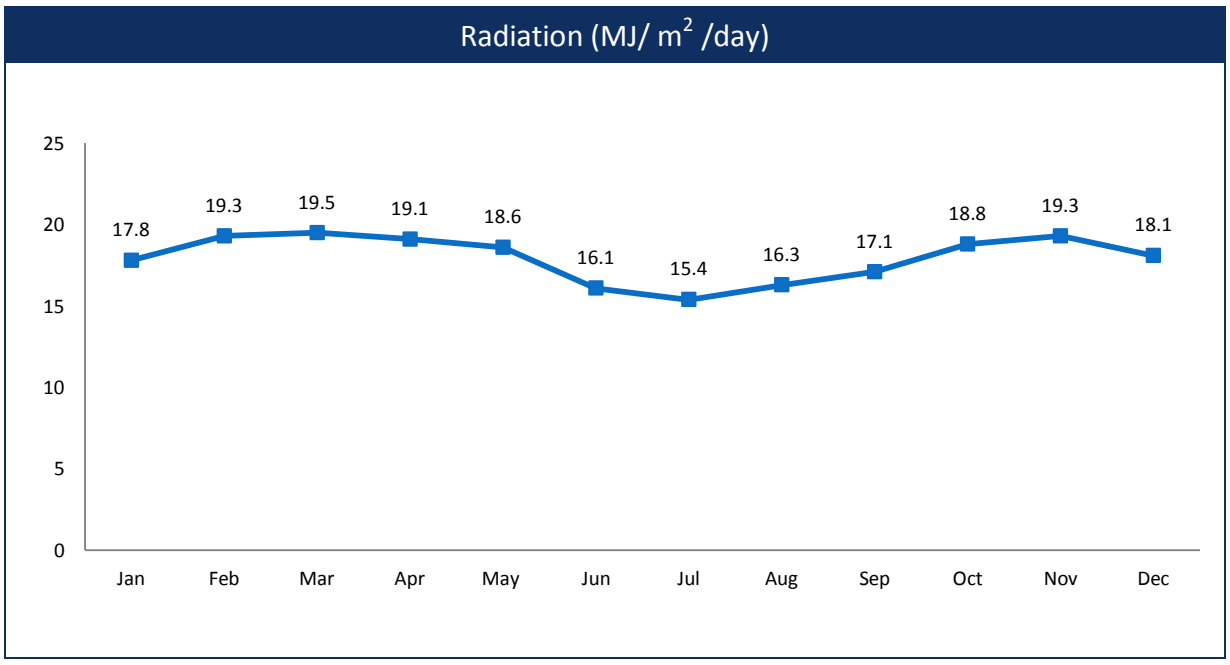
The average minimum and maximum temperatures from the Tembo Farming region are presented by the graph as below.



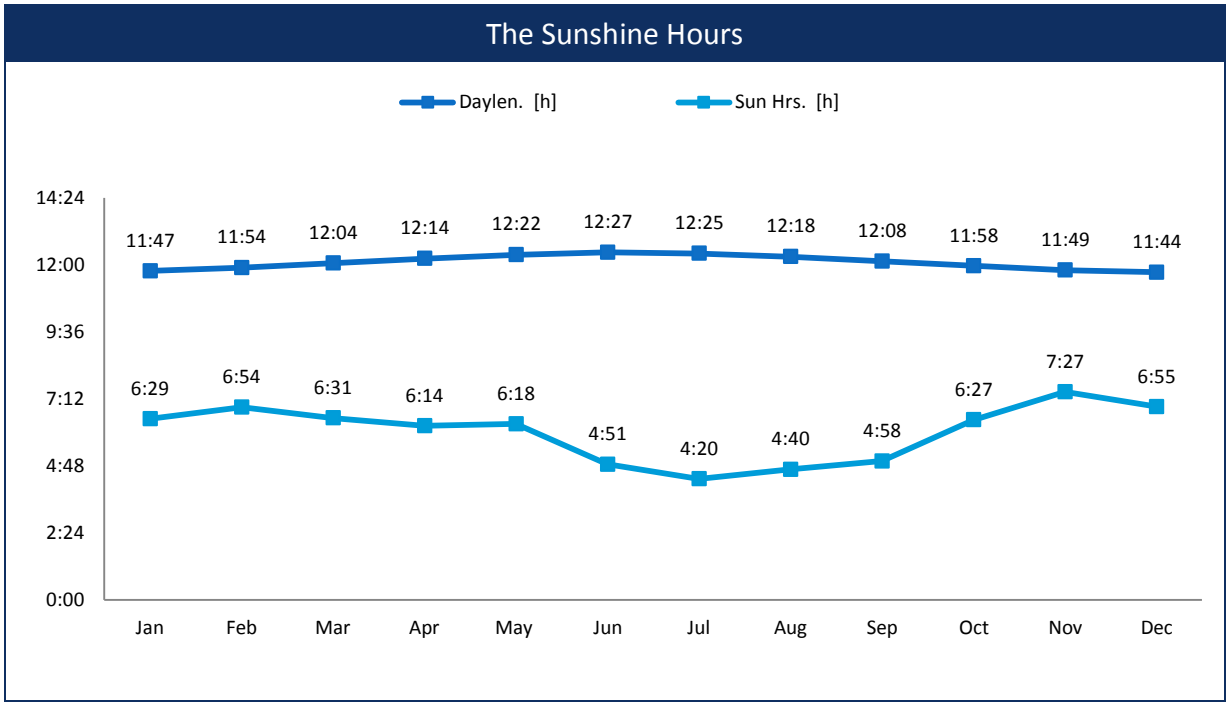
The temperatures in the site do not vary significantly during the year and stay within the optimum boundaries for the plants development. The maximum temperature is around 32°C during all year around. The minimum temperature is stable all year around at 22°C. In this temperature range there will also be no difficulties in seed cane germination.

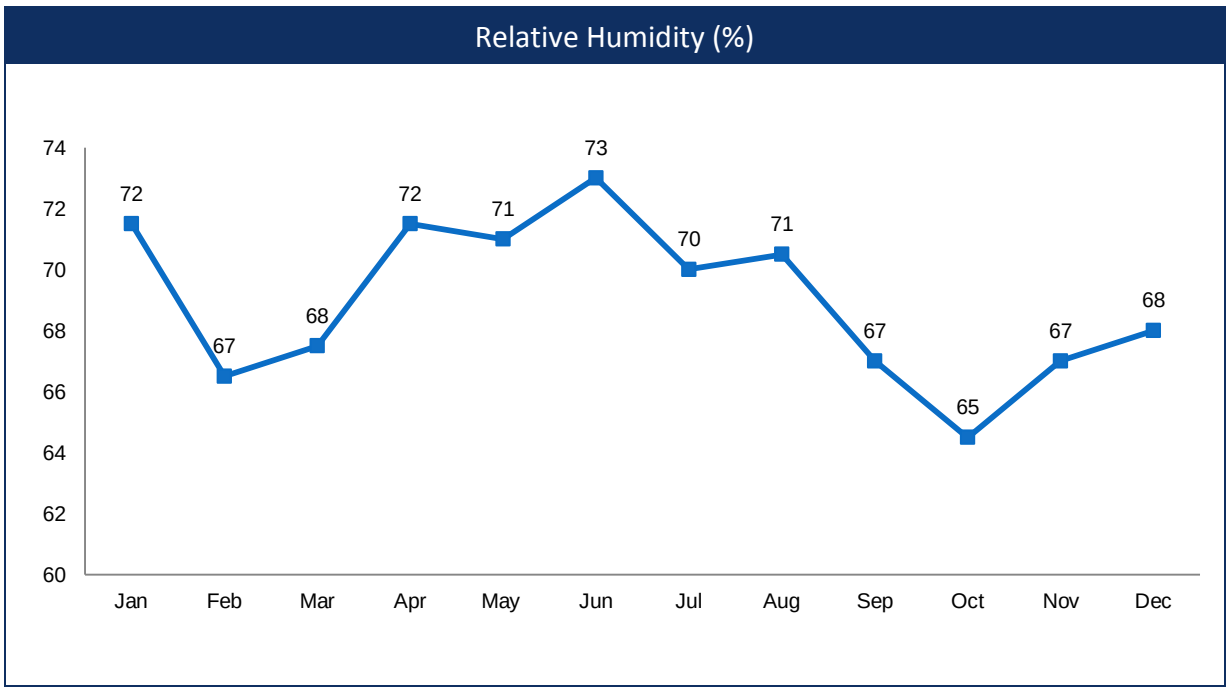
Radiation, Sunshine Hours, Day Length and Wind

Sugarcane grows well in areas receiving solar energy from 18 to 36 MJ m^2. From the graph below we can see that the radiation is stable during most of the year and at the low range of the plant requirements, this also can be noted in the difference between the day length, 12hr, and the sunshine hours, average of 6hr, 50%, meaning cloudy for most of the day. However, the annual total radiation received in 12 months is around 3,548 MJ m^2 and is sufficient for cane production.

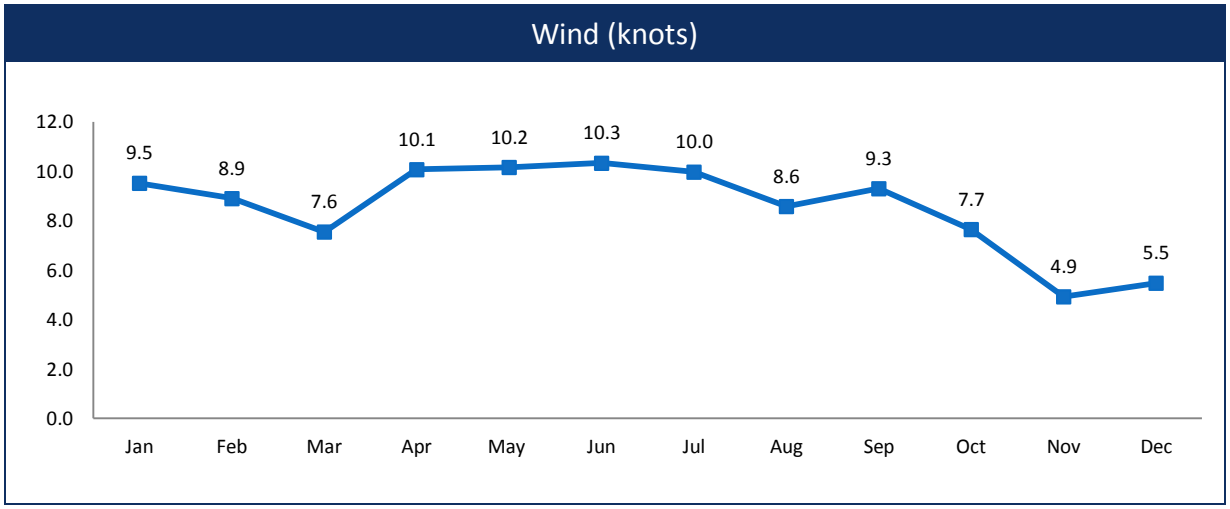


The sunshine hours and the relative humidity from the region are presented on the graph given below



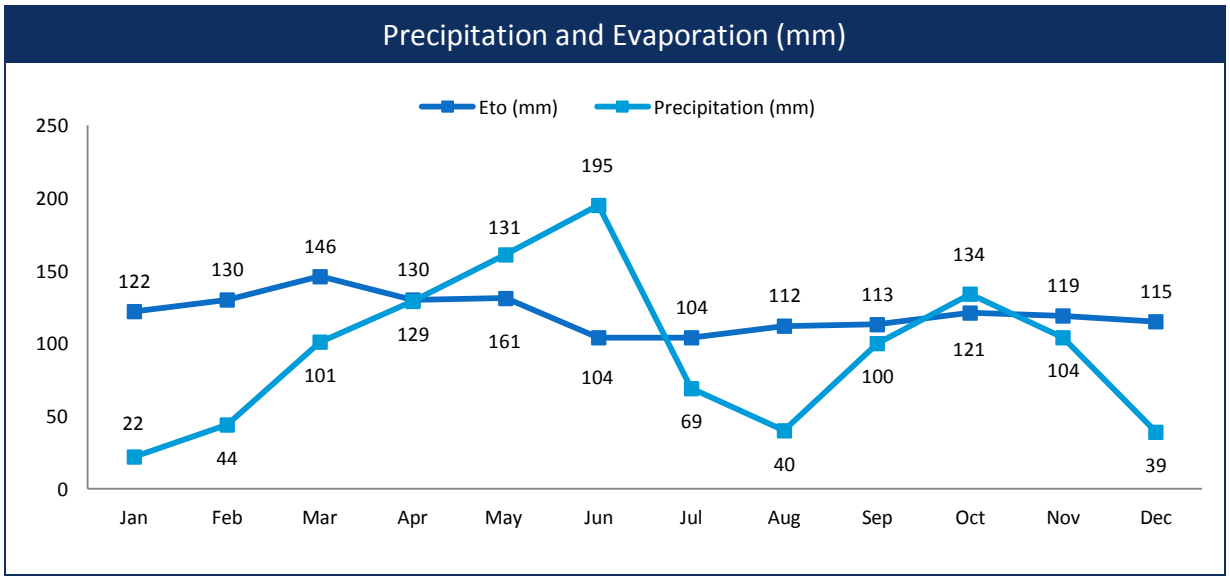


The relative humidity and the sunshine hours are favorable for sugarcane production. High wind velocities exceeding 60-km/hour are harmful to mature canes, since they create lodging and cane breakage. Also, winds enhance moisture loss from the plants and thus aggravate the ill effects of moisture stress. The location data show the average winds are usually very calm, which is favorable for sugarcane plantation. The wind velocity from the region expressed in km/h and km/day is presented as per graph below (1 knot = 1.85 km/hr)



Precipitation and Evaporation

Documentation of the precipitation and evaporation levels for the region is presented in the graph below.



4.3 Rainfall

The average annual rainfall ranges from 300mm in the hinterland to 1,300mm at the coastal belt. The coastal belt receives an average annual rainfall of about 900mm to 1,100mm with marked decrease in intensity to the hinterland. Areas with highest rainfall include Mtwapa and to the north of the coastal strip around the Arabuko Sokoke Forest. Evaporation ranges from 1800mm along the coastal strip to 2200mm in the Nyika plateau in the interior. The highest evaporation rate is experienced during the months of January to March in all parts of the county.

Besides the seasonal changes brought about by the ITCZ, the local topography causes large variations in the climate. To assist in rainfall analysis, the nearest rainfall station to the project's proposed intake site was identified as Malindi - Chakama Chief's Office Rainfall Station (No. 90339034 at coordinates E039.667382, S03.133933 (37M 574155, 9653611 at an elevation of 98 m.a.s.l.), located approximately three kilometers to the south-west of the farm. Analysis of rainfall data from this station indicates that the region experiences a unimodal rainfall pattern from April to November with major peaks in May and August. The long-term mean monthly rainfall distribution Malindi Chakama Chief's Office Rainfall station is shown in Table 4.1.

Table 4.1. Mean monthly rainfall at Malindi Chakama Chief's Office Rainfall station

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct.	Nov.	Dec	Total
Rainfall (mm)	29	14	52	99	72	30	22	20	35	42	109	67	590

The sugarcane productivity and juice quality are profoundly influenced by weather conditions prevailing during the various crop-growth stages; the temperatures are favorable, the rainfall pattern and quantities can allow harvesting and planting almost all year around, though the water balance should be completed by irrigation, and the shortage of sunshine hours should be compensated by favorable temperatures and irrigation system.

4.4 Soil Chemical Analysis

A soil samples analysis of the Tembo Farming land has given the following results.

a. **pH & Acidity** – on average, the pH level is slightly alkaline with an average of 7.7 while in some sample the pH is very high, around 8.5 while in others it is acidic and the pH is around 6. In general, the Al level is less than the critical levels, average of 1.75 meq/100g and as a result the Al saturation is 4% when 8% is considered to be critical. The Al only represents 2% of the soil CEC (Cation exchange capacity).

b. **Soil Salinity and Sodicity** – in general, the EC (Electric conductivity) is very low and salinity is not a threat. The Na levels vary considerably among the different samples, but in general are within the thresholds, 3.25 meq/100g, and 6% of the cation saturation.

c. **Soil Fertility** – the Potassium level, 0.1 meq/100g, and Phosphate level, 2 ppm, are very low and there will be need for heavy-duty fertilization of both. On the other hand, Ca and Mg levels are extremely high, 27 and 17 meq/100g while thresholds levels are 2- 4 meq/100g for Ca and 1 – 2 meq/100g for Mg. As for the micronutrients, there are also very high levels of Fe (90 ppm) and 147 ppm of Mn, B, Zn and Cu levels are within the desired levels.

The detailed analysis of soil sample is attached herein.

4.5 Surface Waters

The area falls within the Kenyan Coastal region with the Indian Ocean to the Eastern side. The drainage pattern for the county is formed by a permanent river (Sabaki) and seasonal rivers, which drain into Indian Ocean through the various creeks along the coastline. The seasonal rivers are Nzovuni, Rare, Goshi and Kombeni. The project lies next to the Sabaki River and intends to use the river water for construction and operation. The Sabaki River which originates from central Kenya (Aberdare and Mt Kenya). It is joined by numerous rivers that form the Athi catchment area, on its journey.

Sabaki River drains into Indian Ocean approximately seventy (70) kilometers downstream of the proposed project intake site. The Sabaki River sub catchment (3HB) is part of the Coastal Zone Water Management Unit (MU), classified as of high livelihood importance. These are areas with predominantly rural characteristics i.e. rural and scattered settlements with varying population density and small scale subsistence oriented economic activities that include irrigation, fisheries and livestock. The key water resources issue is water scarcity and seawater intrusion. Sustainable regional water resources management of these units focus on cooperation with WRUAs and other stakeholders within the management unit.

Plate 4.1: The Sabaki River that shall be the main source of irrigation water

4.6 Physical Characteristics

Kilifi County has four major topographical features. The first one is the narrow belt, which forms the coastal plain and varies in width of 3km to 20km. The coastal plain lies below 30m above sea level with a few prominent peaks on the western boundary including hills such as Mwembetungu. Across this plain run several creeks resulting in excellent marine swamps that are endowed with mangrove forests and present potential for marine culture. This zone is composed of marine sediments, including coral, limestone, marble, clay stones and alluvial deposits that support agriculture.

To the west of the coastal plain lies the foot plateau characterized by slightly undulating terrain. The plateau falls between 60m and 150m altitude and slopes towards the sea. A number of dry watercourses traverse the surface with underlying Jurassic sediments consisting of shells, sandstones and clays. In this zone, grassland and stunted vegetation prevail.

The coastal range falls beyond the foot plateau and has distinct low range of sandstone hills and ranges between 150m to 450m high. These hills include Simba, Kiwava, Daka, Wacha, Gaabo, Jibana, Mazeras and Mwangea. The Nyika plateau that rises from 100m to 340m above sea level and occupies about two thirds of the county area covers the lower lying ground along the western side of the county. The plateau is less populated with a thin vegetation cover, shallow depressions and gently undulating terrain. This is an arid and semiarid zone, which is suitable for ranching. The area is also outcropped by decomposed rock.

4.7 Ground Condition on Site

Currently there is no structure on the site and no soil contamination in the area. The area is well drained and has sandy loam soil. As indicated elsewhere in this report, the plant will be located at the highest point of the property that is currently uninhabited and with sparce ASAL vegetation shrubs.

4.8 Air Quality

The air is generally clean and not contaminated by dust or biological organisms.

4.9 Noise Level

The existing noise level is normal. The proponent intends to set up the factory further from human settlement and the surrounding vegetation and sugarcane plantation will act as a noise buffer.

4.10 Area Ecology

The land is covered with grass and short bushes in the open fields. However, a few indigenous fruit trees within the site and those planted along the river were observed to be doing well. These include coconut trees and cashew nuts. While the proponent has agreed to allow the squatters to continue living in their settlement along the river, emphasis must be put on maintaining the riparian reserve to prevent siltation of the river.

Plate 4.3: Fruit trees planted along the river by squatters residing in the farm

4.11 Land Use

The land use of an area is determined by its agricultural potential which is mainly the interplay of geology and climate - which influences the formation of soils, and their fertility and quality; altitude - which determines temperature that in turn, influences plant growth rates; and rainfall which also determines plant growth and production. The current land use in the project area is mainly bush-land (84.5%) with only 0.6% under agriculture. The table and figure below shows the land use distribution within the sub basin:

Land Use	% cover
Agriculture (Dense)	0.3%
Agriculture (Sparse)	0.3%
Bushland (Dense)	83.1%
Bushland (Sparse)	11.4%
Grassland	0.8%
Woodland	4.0%

Table 4.3: Land Use Pattern

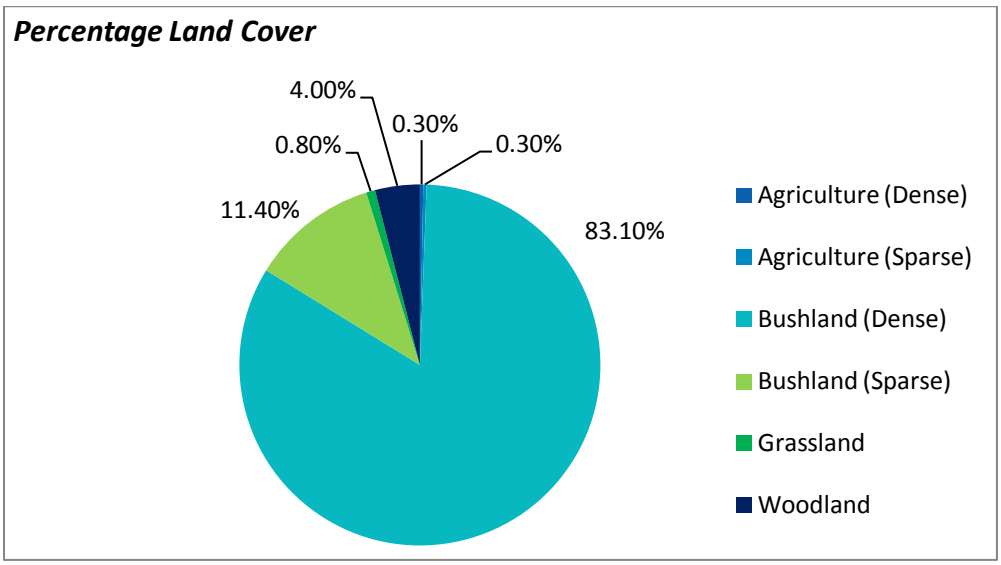


Plate 4.4: Farming along the River Sabaki

Plate 4.5: Livestock belonging to nomadic pastrolists

4.12 Traffic/Transport

This area is well served by public transport by the Malindi – Galana Kulalu road. Any additional traffic on this is not expected to have a major impact.

5 STAKEHOLDER ENGAGEMENT AND PUBLIC PARTICIPATION

5.1 Introduction

The Stakeholder Engagement and Public Participation process is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated in the National Constitution and also by EMCA 1999 and EMCA (amendment), 2015 section 58, on Environmental and Social Impact Assessment (ESIA) for the purpose of achieving the fundamental principles of sustainable development. This section describes the process of the consultation and public participation followed to identify the key issues and impacts of the proposed sugarcane farming project from the public and key project stakeholders in both public and private sectors. Views from the local residents, local leaders, surrounding institutions and development partners for the proposed TSM, who in one way or another, directly and/or indirectly, would be affected or have interest in the proposed project were sought through interviews, technical consultative forums and public meetings as stipulated in the Environment Management and Coordination Act, 1999 and EMCA (amendment), 2015 (Cap 387).

The initial Public Consultation Meeting was conducted on 13th March 2016 at Malindi Town occasioned by the outcome of various meetings with the community development officers and attended by a total of 26 people (Plate 5-1). The outcome of the PCM was setting up of a liason committee that tasked with setting up a public baraza for the project as well as conduct project awareness for the project as well as come up with recommendations for smooth implementation of the project. The main baraza was held on 26th April 2017 at Ropi Village.

Some of the stakeholders consulted and whose comments have been noted include:

1. County Director of Water Affairs – Kilifi County
2. County Director Culture – Kilifi County
3. Social Services Department
4. Kilifi County CEC – Wildlife, Forestry, Environment & Natural Resources
5. Kilifi County Ag. CEC - Agriculture and Land
6. NEMA CDE – Kilifi County
7. MCA – ADU Ward, Kilifi County Assembly
8. Subcounty Administrator – Magarini Subcounty
9. Ward Representative- ADU Ward

Plate 5-1(a): Meeting with the area chief

Plate 5-1(b): Meeting with the local administration (MCA, Subcounty rep and ward rep)

Plate 5-1(c) – First PCM held at scorpion villa – Malindi

5.2 Objectives of the Stakeholder Engagement and Public Participation (SEPP)

The objective of the consultation and public participation was to:

- Disseminate and inform the stakeholders about the details of project with special reference to its key components and location.
- Create awareness among the public on the need for the ESIA for the proposed sugarcane farming project.
- Gather comments, suggestions and concerns of the interested and affected parties.
- Incorporate the information collected in the final ESIA study report.

In addition, the process enabled the establishment of a communication channel between the general public and the team of consultants, the project proponents and the Government; and the concerns of the stakeholders to be known to the decision-making bodies at an early phase of project development.

5.3 Positive concerns raised by the public

The positive concerns raised were:

a) The project would encourage sugar cane farming in the neighbourhood

b) There will be both direct and indirect employment for the people: the former will apply to workers who will be employed by TFL and the latter will apply to sugar cane farmers and those who will be employed in business that will spring up due to the presence of TSM.

c) TSM will have to improve certain roads in order to access the factory.

d) TSM is planning to set up a health care center and schools that will benefit the locals

e) New businesses will spring up and old ones will grow as a result of migration of people in the area.

f) The local economy is likely to grow through backward and forward linkages and income and employment multiplier effects resulting from the project.

g) Some by products from sugar processing will be used locally. Such byproducts will include ash/bio compost which can be used to fertilize the soil.

h) The establishment of sugar complex in Kilifi County will contribute to industrial development.

i) The project will provide raw materials for other industrial Plants e.g., those manufacturing industrial spirits.

j) The project will contribute to the growth of Ropi shopping center into a town.

k) The project will produce sugar for domestic use hence saving the foreign exchange that could be used for its importation.

5.4 Negative concerns /issues raised by the public

The negative concerns raised were:

Land take and displacement

The community members were concerned that there is likely to be displacement of the residents from their lands. It was however agreed that TFL will not relocate the 75 households on the land (subject to terms and conditions) but shall cohabit with them on the land.

Food security

It was noted that sugarcane production especially introduced to the local farmers will take over most of the land now under food crops. This scenario is likely to endanger food security in the project area and therefore there was need for an integrated approach to commercial and subsistence farming considering the food situation in the project area.

Farm inputs

The community was of the opinion that to encourage and enable them to embrace sugarcane farming, farm inputs such as fertilizers should be provided to the farmers by the project proponent. This, they felt would increase sugarcane productivity and yield and make sugarcane farming a profitable venture.

Corporate social responsibility

The community felt that the proponent should provide other services and amenities as a way of appreciating the community contribution to the project. Such facilities that were proposed include roads, schools, water and health care facilities (especially for those affected by HIV/AIDS) and economic welfare for the elderly persons.

Job opportunities

The respondents indicated that the sugar factory is expected to employ the local people especially the youth either directly or indirectly. It is expected that both casual and permanent jobs will be available.

Industrial Development

The respondents noted that the proposed Project will enhance industrial development in Kisiki area and that it will lead to economic development and growth in the project area.

Respondents overall assessment towards the proposed Project

When the respondents were asked to state whether they find the proposed sugar complex of Tembo Sugar Mills Limited and Tembo Sugar Farm in Matolani as positive and beneficial in the overall, all of them said the proposed Project will be positive and beneficial in the overall.

The list of consulted persons, minutes and the photos of the various meetings are attached in the annex of this report.

The results of the consultation

The result of the consultation is that most of the respondents were aware of the proposed industrial development and welcomed this development indeed as evidenced by the attached minutes of meetings. All of the residents and stakeholders that we interviewed expressed their acceptance for the proposed industrial development as it will create the much needed jobs while at the same time promoting business growth in this location.

The overall conclusion from the interviews, awareness and analysis of the minutes of the meetings led to determination of the following:

- The proposed development project is accepted by the interested and the affected parties (i.e. all of the respondents)
- The proposed project will benefit the general population of by providing the much-needed jobs and in the long run reduce dependency and poverty.
- Other tertiary businesses such as hotels in the area hope to develop.
- Majority of the respondents are of the opinion that the project will cause negative impacts on the air resources and water resources. This has been discussed and mitigation measures for the same have been proposed.

6 ANTICIPATED ENVIRONMENTAL IMPACTS

6.1 Introduction

Irrigated agriculture is crucial to the economy, health and welfare of the local community and the country in general. It is too important to the marginalized communities like Matolani people as it is vital for food security. However, irrigated agriculture often radically changes land use and is a major consumer of freshwater. Irrigation development thus will have a major impact on the environment. It may results in some form of degradation. It is necessary to determine the acceptable level and to compensate for the degradation. This degradation may extend both upstream and downstream of the irrigated area. The impacts may be both to the natural, physical environment and to the human environment. This section discusses both identified positive and negative impacts. However, it is noteworthy that most of the impacts identified are temporary and will have no lasting or irreversible consequences on the environmental state of Matolani area.

6.2 Impacts during farm clearing and pipe laying

Impact on flora and fauna

More flora will be cleared to pave way for the farming blocks, mains pipeline among other facilities. The farm has deep Arid and Semi-arid Land (ASAL) vegetation which changes to large trees as you approach the riverline. Although these areas are small, care must be taken to minimize the disturbance, otherwise bank erosion on the River Sabaki or the local runoffs across the pipeline route could cause damage. However, due to the vigorous plant growth along the river course, it is expected that the pipeline route will be completely overgrown within a short period.

Most of the other construction areas will be located in arable lands. Since only little fauna is found within the Farm save for birds and small mammals, little impact is expected on fauna during construction. They are expected to inhabit the plantation once the cane is grown.

Impacts on air quality

During construction, noise and oduors can be expected. These can degrade the air quality and could impact on public health. Sources of air and noise pollution include the following.

- Machinery
- Excavation, pipe laying and concreting works
- Human activity

There are no dangerous emissions expected from the construction activities, and there is no rock blasting required.

Impacts on soil and water quality

Sources of potential soil and water pollution may include the following:

- Spillage of oil, adhesives, chemicals etc
- Improper waste disposal of construction materials.
- Improper sanitary facilities at the site for the construction labor force
- Waste water from the construction activities
- Waste oil from the construction equipment
- Fuelling, maintenance and servicing activities of the construction equipment

Waste management during construction is crucial to prevent negative aesthetic impacts on the surrounding environment.

Visual impacts

Only the intake weir, sedimentation tank, gully crossing structures and drip lines will be visible during farm development. However, the impacts will be minimal since the area is enormous.

Socio-economic and cultural impacts

During the implementation of the farm, the socio-economic impacts will be positive including:

Employment opportunities created for construction workers, materials suppliers and local contractors.

Opportunities created for those providing services to the construction workers such as food vendors.

Archaeology

Archaeological discoveries are not anticipated, as there are no records of such findings within the Farm or the neighborhood.

Source of construction materials

The source of the construction materials such as ballast and stones had not been established at the time of the site assessment. However, it should be a requirement that the contractor will source these materials from approved sites and the sites made good at the end of their use. Most of these materials will be brought to the site by the contractor.

Water and energy utilization

The construction process will require moderate quantities of water for the following activities:

- Washing of machinery and equipments
- Preparing of mixtures including adhesives (emulsions)
- Concrete works
- Curing of concrete
- General cleaning
- Landscaping
- Controlling dust on site

These activities, though not significant at this instance, are potentially capable of impacting on the soils, surface and groundwater.

Energy for construction will be provided in the form of standby generators and from diesel or petrol powered machinery and vehicles.

Health and safety issues

Health and safety risks during construction will include the following:

- Fire
- Inhalation of fumes
- Physical injuries from slipping, falling, handling equipment and construction materials
- Injury from contaminated soil or water

6.3 Impacts during commissioning and operation

The key environmental issues during commissioning and operation will be soil erosion, the use of fertilizer and pesticides, water logging and salinization, waste generation and disposal, and minimization of health and safety risks. There will also be social and economic benefits of the TFL project.

Soil erosion

Some areas of the Farm have slopes of about 6% and sandy soils. Un-manned sprinkler irrigation on these slopes may generate soil erosion unless mitigation measure (levelling of the land) are enforced. Proper irrigation management practices have to be employed to mitigate such loss.

Fertilizer and pesticides use

Once irrigation begins in the Farm, farmers may use excessive quantities or in appropriate chemicals that are dangerous to the environment. A gradual build up of these in the soil and ground water may cause detrimental effects to the Farm residents and the flora and fauna.

Water logging and salinization

Most of the Farm has permeable soils and rocks that will allow free drainage. However, irresponsible irrigation practices near the swampy and some low lying sections of the Farm may cause water logging and associated salinization of the soils.

Waste generation

Waste generated during operation can be classified as follows:

- Drainage water from the cultivated areas resulting from water over-application
- Drainage water from cleaning of sprayers and other chemical application equipment
- Dry solid waste (e.g. empty packaging materials etc)

Impacts of poor waste management on the site include the following:

- Contamination of air, soils, ground and surface water
- Vermin infestation and diseases risk
- Spread of infectious and contagious diseases

Natural hazards

Although no natural hazards have been documented for the Farm area, some lower parts River Sabaki have reported flush floods.

Socio-economic and socio-cultural impacts

The main impact of developing the Farm is expected to be the employment opportunities created for the locals and for those providing services to the Farm.

Table 6.1: Matrix Relating Project Stage to Social Impact Assessment Variables

Social Impact Assessment Variable	Planning/Policy Development	Implementation/ Construction	Operation/ Maintenance	Decommissioning / Abandonment
Population Characteristics				
• Population Change	Due to increased income, the growth rate will increase	People will form groups for execution of the infills	Many will sell their land for new hardworking individuals	The project will be managed by the executive committee
• Ethnic and Racial Distribution	The area will be inhabited by mixed ethnic groups	The area will be inhabited by mixed ethnic groups	The area will be inhabited by mixed ethnic groups	The area will be inhabited by mixed ethnic groups
• Relocated Populations	There is no relocation	There will be no relocation	It is expected that the lazy ones will sell their part of their lands	There will be no relocation
• Influx or outflows of temporary workers	None	Minor	Major	None
• Seasonal Residents	Minimal	Minimal	Major	Minimal
Community and Institutional Structures				
• Voluntary Associations	Residents have formed a WUA	There will be voluntary associations to execute WRUA recommenations	The residents/ groups will liase with TFL for membership of WRUA	The residents/ groups will hire a competent persons for O& M
• Interest Group Activity	Domestic and Irrigation	Domestic and Irrigation	Domestic and Irrigation	Domestic and Irrigation
• Size and structure of local Government	There is Sub-Chief and Chief	There will be a sub-chief and Chief	There will be a sub-chief and Chief	There will be a sub-Chief, Chief and a Village Elder

Social Impact Assessment Variable	Planning/Policy Development	Implementation/ Construction	Operation/ Maintenance	Decommissioning / Abandonment
• Employment Equity of minority Groups	Vulnerable groups without employment	Provide labour	Provide labour	Vulnerable groups without employment
Political and Social Resources				
• Distribution of Power and Authority	Water Committee and Provincial Administration	Water Committee and Provincial Administration	Water committee	Water Committee and Provincial Administration
• Identification of Stakeholders	Water resources Users Association	Institutions e.g. WRMA, NEMA, Govt	Appointed Water caretaker	Water resources Users Association
• Interested and affected publics	Where pipe is cutting peoples land	Beneficiaries	Beneficiaries	Beneficiaries
Individual and Family changes				
• perceptions of risks, health and safety	Have been sensitized on the need	During trenching there will be dust which might lead to respiratory diseases	If the vegetables are not boiled enough, and water drunk before boiling cases of water borne diseases might increase	Strong leadership through training to be accountable
• Displacement/ relocation concerns	None existent	Beneficiaries	beneficiaries	Beneficiaries
• Attitudes towards policy/project	Good	Good	Excellent	
• Family and friendship networks	Welcoming to other members	Welcoming to other members	Welcoming to other members	

Social Impact Assessment Variable	Planning/Policy Development	Implementation/ Construction	Operation/ Maintenance	Decommissioning / Abandonment
• Concerns about social well being	Needs water for irrigation	A family will send representative to participates in unskilled labour	There will be participatory management approach to cover O & M costs	
Community Resources				
• Change in community infrastructure	Improved housing and reduction in poverty index	Improved housing and reduction in poverty index	Improved housing and reduction in poverty index	
• Land Use Patterns	Sugarcane is planted almost throughout the year in Kenya except during heavy rain period i.e. April and November.	Sugarcane is planted almost throughout the year in Kenya except during heavy rain period i.e. April and November.	Sugarcane is planted almost throughout the year in Kenya except during heavy rain period i.e. April and November.	

7 PROPOSED MITIGATION MEASURES

7.1 Construction Phase

The project Engineer will be at the site and will be in charge of all the activities there. The site supervisor will ensure that, at all stages of the project implementation on the ground, the design is followed as well as specifications laid down. All the environmental aspects of the project will be taken into consideration during presentation of progress reports, to show the level of implementation of mitigation measures.

After completion of the project, all debris will be properly disposed of and land planning will be done in an aesthetically appealing state.

Save for the arable land, there will be minimal disturbance of the physical environment to reduce any damage during construction phase. Therefore, the following considerations will be put into place:

i. Proper handling of heavy and likely hazardous materials
ii. Minimal movement of machinery and vehicles
iii. Ensure health and safety rules are followed
iv. All wastes generated properly disposed of as well as other pollutants

It is therefore imperative that in order to have a good EMP, there shall be:

a. Record keeping on environmental, social health as well as safety measures undertaken as well as complaints documentation
b. Necessary licenses and permits are procured
c. A register of conformance with the environmental regulations as well as clear guidance through written instructions by the Engineer as well as the site supervisor.

Flora and fauna

As much as is practicable, there shall not be vegetation removal or wildlife habitat destruction in the course of implementing the project. Birds nesting sites should not be interfered with. Unnecessary removal, disturbance and destruction of vegetation shall be avoided.

Introduction of alien vegetation and plants shall be restricted. As much as possible, vegetation shall be trimmed but not completely removed. Necessary constructions shall be done at a central place for storing materials to reduce destruction of vegetation as well as reduce disturbance of the local residents through unnecessary movement of personnel and vehicles.

Water course

Construction activities will always generate soil waste, through excavation works; this can lead to sedimentation of rivers and streams. There shall therefore be minimal construction activities near water courses to reduce water pollution and no stockpiling of materials shall be done near them where flooding is likely to occur. It is recommended that construction will therefore be done during the dry season to minimize flooding and water pollution as well as soil erosion in areas which are prone to soil erosion. Where abstraction of rivers occur for tapping irrigation water, there shall be riverbank stabilization, the necessary modification of the river channel shall be done to prevent change of the river course and subsequent erosion of the bank.

Where modifications of the water courses occur, which were not in the design, the contractor shall restore the area into the way it was prior to modification after completion of the project. Landscaping works shall be considered where the intake is constructed as well as secured by proper fencing to prevent pollution and entry into the area by local residents and livestock. It is natural that wherever there is a water course passing through, there is riparian vegetation, this shall be preserved during construction activities and only minimal removal at the intake point shall be done if necessary.

Dust, noise and other emissions

The contractor shall maintain construction machinery and vehicles in accordance with service schedules specified to minimize noise level as well as ensure health and safety of the workers and other persons affected by the project. Machinery shall be used only where human labour cannot be practically used.

The project contractor shall control noise levels by ensuring that once vehicles stop, then engines shall be switched off immediately at the construction site. Sprinkling of water and use of dust screens shall be done where dust nuisance is likely to occur. It is also imperative that farming activities will continue as construction works proceeds, the contractor shall therefore ensure appropriate practices are adhered so that minimal disruption of the community activities and lives.

Noise standards for industrial enterprises should be strictly adhered to and enforced, to protect workers and residents from its harmful effects. Workers shall wear earplugs and working where there are unacceptably high levels of noise shall be limited.

Information on noise, dust and other emissions shall be recorded during site reporting and the supervisory team shall act on this information.

Waste

The contractor shall have waste management plans for waste minimization and recycling practices. The following procedures shall be followed:

- Waste minimization: There should be minimal wastage of materials, appropriate handling, storage and accounting practices shall be put into place.
- Handling of waste generated: Burning of waste shall not be permitted, construction workers will be sensitized on waste disposal and handling at the site. Designated garbage collection and holding areas will be properly demarcated and appropriate notices posted.
- Recycling of materials: The contractor shall, where appropriate, reuse materials damaged or spent at the site.

In addition, waste disposal for the Farm shall comply with waste management practices under the Laws of Kenya.

Archeology

With finding of any object of interest and in the event of any other find of historical significance, the contractor shall secure the location and duly inform the National Museums of Kenya or local authorities to secure the find.

Materials

There should be records on sources of materials used in the project. All the materials should be sourced from approved suppliers and in particular, those that have complied with National laws.

Water and energy

Small quantities of water will be required during construction phase. Measures for energy conservation shall be put into place. The contractor should therefore ensure that all equipment and machinery is well maintained. All motorized machinery shall be switched off when not in use.

7.2 Operation Phase

Farm management

At the commissioning phase, there shall be enforcement and incorporation of "best practices" to minimize negative environmental impacts. There is a project implementation team charged with overseeing the project at the planning and commissioning phases, which will have a function of being responsible for environmental health and safety issues for the irrigation project. It should ensure that environmental stewardship is followed in the farm and regular reports made on its performance and progress indicated in implementation of Environmental Management Plan (EMP)

The project proponent, shall undertake to monitor the following concerns after project completion:

i. Water abstraction rates and use
ii. Erosion levels
iii. Waste handling and disposal
iv. Infrastructure maintenance
v. Occupational health and safety measures

In addition, the following shall be carried out:

i. An yearly audit to verify the level of compliance with the proposed mitigation measures and implementation
ii. Incorporation of environmental monitoring and management programmes in the project operations

The technical specifications shall be followed to ensure that the construction is undertaken in compliance with the design and any changes shall be approved and documented.

Health and safety considerations

The risks associated with this can be minimized through training of employees on safe and effective use of agro-chemicals and use of first aid measures as well implementation of integrated pest management procedures.

Infrastructure

All the equipment and piping materials and accessories shall comply with set standards as specified in the tendering process and that parts required as well as spares are available in the market for sustainability purposes and to ensure that the projects operations continue without interruptions.

A regular inspection and maintenance schedule shall be followed. This can be enhanced by training maintenance personnel on repairs and maintenance to ensure prompt repairs to damages.

7.3 The risk of over- Abstraction

Preventive measures that can reduce the risk of widespread or local impacts of over-abstraction include:

- Reducing the quantity abstracted
- Changing the abstraction rate or pattern of abstraction (such as abstracting at a lower rate but for a longer period)
- Use of a master meter to ensure there is no over abstraction.
- Adhering to the guidelines given by the Ministry of Water and WRMA
- Supplementing the water with other sources, e.g. rain water and harvesting.
- Use water efficiently to avoid wastage.

7.4 Recommendations for Water Management

There is considerable scope for water demand management, which is defined as measures adopted to control consumption and reduce or eliminate leakage. These measures are roughly divided into the following:-

- Economic methods
- Physical methods
- Socio-political methods

Economic Methods

Recommendations for economic methods for water demand management are presented below. These optimize or minimize water use by financial incentives:-

- Uniform commodity rates: a single rate that does not change with increasing use. These may vary with use (e.g. domestic, commercial, public utility, industrial). Easy to apply.
- Base price with increasing block rates: a tariff where a certain baseline amount is sold at a low rate to ensure health, after which tariffs increase in blocks (as above). Application straightforward (but see comments in previous paragraph).
- Peak load pricing: a surcharge is charged during times of day when demand is high. Difficult to monitor and charge.
- Seasonal pricing: rates vary according to resource availability. Thus wet-season charges will be less than dry season charges. Blanket rates, easy to apply.
- Dry-season surcharges: a surcharge is applied to dry season consumption only. Blanket rate, easy to apply.
- Excessive use charges: straightforward to apply once definitions of excessive use are clearly understood by users. For example, “drought orders” or “hose-pipe bans” might be used as tripwires indicating commencement of an excessive use charge period (see socio-political measures below).

The economic approach also includes system development charges, where a unit or *pro-rata* fee is levied to develop a specific project; to rehabilitate a river catchment or construct additional storage, for example. Easy to apply, but often contentious among consumers.

Physical Methods

These deal with water supply engineering aspects, and include structural and operational approaches.

Structural controls

Structural methods to control water demand include the following range of measures:-

- Metering
- Use-efficient appliances:
    - Sprinklers: ultra-sensitive sprinklers;
    - Drippers – ultra-sensitive drippers
- Flow control and pressure reduction
- Water reuse, recycling and re-circulation

Operational Controls

These are measures taken by water users to modify water use patterns or control demand more efficiently. These include:-

- Leakage detection and repair
- System rehabilitation when necessary (unlikely in current new system context).
- Xeroscaping:-
    - Water efficient design (including non-vegetative landscaping);
    - Efficient irrigation systems;
    - Tensiometers (soil moisture monitoring);
    - Scheduled irrigation.
- Water use restriction during periods of water shortages.
- Periodic water audits

Socio-political Methods

These are measures that relate to policy and measures that can be taken by agencies to encourage water conservation.

Public education

- Mail: bill inserts; newspapers; pamphlets
- Public media: newspapers; radio/television; posters/flyers.
- Events; environment days; demonstration gardens; water facility tours; school programs; educational videos.
- Personal contact: dissemination of domestic water-saving devices and kits; conversation/assistance hot lines; public seminars/workshops.

Rules and Regulations

- Land-development codes (zoning irrigation sections based on crop water demand, etc)
- Limited-use contracts

Direct restrictions

- Rationing methods: fixed allocations; variable percentages; per capita allocations; prior use allocation.
- Priority by consumer type: temporal restrictions on watering; bans on certain water uses. Note that in Kenyan water law, domestic water supply has priority over all other uses (GoK 2002:ξ32[2]).

8 ANALYSIS OF PROJECT ALTERNATIVES

This section analyses the irrigation project alternatives in terms of site, technology scale and project management options.

8.1 No Project Alternative

The No Project option in respect to the proposed TFL Project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. This option will however, involve several losses both to the Government and the community as a whole. The Government shall continue to offer assistance to the people of Matolani through food aid, health care, unproductive population thus strain the National reserves and offer hindrances in National growth and development.

The No Project Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

- The economic status of the Kenyans and the local people would remain unchanged.
- The local skills would remain under utilized.
- Reduced local and national returns due to low productivity of the land.
- Reduced interaction both at local, national and international levels.
- No employment opportunities will be created for thousands of Kenyans who will work in the proposed project area.
- Increased rural poverty and associated problems.

From the analysis above, it becomes apparent that the No Project alternative is no alternative to the developer and the people of Matolani, Kenyans, and the Government of Kenya.

8.2 Analysis of Alternative Irrigation Technology

Water application will be by drip system.

8.3 Irrigation management alternatives

As described in the mitigation and monitoring plans, management of irrigation will determine the sustainability of the project. Proper training of the WUA members is important to achieve high management levels.

9 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

9.1 Management

The Environmental management and Monitoring Plan (EMMP) allows measures to be implemented that will avert/prevent negative impacts. In addition the EMMP assigns responsibilities of actions to various actors and provides a timeframe within which mitigation measures and monitoring can be done. The project manager must ensure that the contractor implements all the proposed mitigation measures and in time and the contractual agreement should take account of the proposed EMMP inter-alia.

Simple monitoring tools will involve a checklist to record information relating to oil spills, leaks, liquid and solid wastes, noise levels and air pollution.

The prevalence of accidents in work place will require close monitoring.

The EMMP in Table 9.1. below shows the envisaged impacts, mitigation measures, and implementation period, the required resources and the responsible persons to take the action.

Table 9.1.: Environmental Management and Monitoring Plan (EMMP)

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
Construction and Pipe Laying Phase	General site management:	• Land, air, water and noise pollution • Occupational Health and Safety hazards	• EMCA, 1999 • Public Health Act • Local Government act • OSHA, 2007	• Farm management responsibilities • Construction supervisor responsibilities • Contractor responsibilities • Sub-contractor responsibilities Define lines of communication / liaison; Define site specific environmental mitigation measures: • Housekeeping and working hours • Public relations • Lighting, security • Deliveries, storage, handling. • Traffic and access • Site clearance.	Construction records Site inspection of all the construction works	During construction period	40,000	Project Supervisor Contractor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Drainage management	Soil, surface and ground water pollution, Occupational health & safety;	• EMCA, 1999 • Public Health Act • Local Government act • OSHA, 2007	Proper site drainage management: • Control erosion • Avoid ponding of water; • Proper waste and material handling, and storage to avoid flushing of wastes in to drainage systems.	Daily auditing and spot checks	During construction period	10,000	Project supervisor. Contractor.
Clearing and Construction Phase	Area of concern	Environmental social /issues	• Standards and guidelines	• Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost ('00 Khs.)	Responsibility
	Water handling	Excessive usage, pollution, work area health & safety	• EMCA • Water act • Public health act • OSHA, 2007	Approved water handling on site; • Control wastage • Control ponding, runoff, scouring and erosion	Daily auditing and spot checks	During construction period	5,000	Project supervisor. Contractor.
	Waste management	Pollution, infestation by vermin, work area health and safety	• EMCA • Public health act	• Controlled use of raw materials on site; • Waste minimization at the source	Daily auditing and spot checks	During construction period	20,000	Project supervisor. Contractor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
			• OSHA, 2007	• Safe waste storage and handling on site; • Monitoring and reporting				
	Soil erosion	Soil loss and sedimentation in streams and rivers.	• Agriculture Act • EMCA, 1999 • Water Act	• Minimize vegetation disturbance; • Restore sites immediately after construction • Build gabions along gulleys	Daily spot checks	During construction period	100,000	Project supervisor. Contractor.
	Noise vibration	Nuisance and damage to existing buildings.	• Public health act • OSHA, 2007	• Constraints on working hours; • Noise minimization measures; • Site screening; • Manage vibration, if applicable; • Monitoring, reporting and community liaison	Daily spot checks	During construction period	5,000	Project supervisor. Contractor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Dust; emission	Nuisance and pollution.	• Public health act	• Minimization and suppression measures	Daily spot checks	During construction	3,000	Project supervisor.
Construction and Pipe Laying Phase	Area of concern	Environmental social /issues	• Standards and guidelines	• Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost ('00Khs.)	Responsibility
	Archeological sites.	Destruction of historical findings.	• National museum of Kenya (NMK)	• Secure any "find" and alert the National Museums of Kenya (NMK) immediately	Immediate report	During construction period	1,000	Project supervisor. Contractor.
	Earthworks excavation	Wastes arising, safety, noise, vibration, groundwater contamination, exposing contaminated materials.	• Local Government act • Building code.	• Noise, dust, vibration minimization measures; • Minimize excavation and materials for disposal; • Exclude water from excavation; • Properly support excavated areas as appropriate • Use of manual labour as opposed to machinery;	Daily auditing	During construction period	50,000	Project supervisor. Contractor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
				• Minimize risk of contaminating ground water • Safe material storage, appropriate disposal sites.				
	Materials for construction	Destruction caused by mines and quarries, wastage.	• EMCA, 1999	• Document and report on all material sources • Control wastage of block, brick and stone work etc; • Utilize damaged materials elsewhere.	Monthly reporting	During construction period	5,000	Project supervisor. Contractor.
	Concrete works	Dust, noise, oil contamination.	• Bylaws	• Controlled batching; • Control dust & noise	Daily, spot checks	During construction	5,000	Project supervisor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
Construction and Pipe Laying Phase	Area of concern	Environmental social /issues	• Standards and guidelines	• Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Operation and maintenance of construction machinery	Emissions, pollution, noise, vibration.	• EMCA. • Local Government Act	• Use of licensed / trained operators; • Maintenance of machinery to specifications; • No used oils / filter / material disposal on site; • Safe storage of chemicals / fuels / lubricants etc • Spill control / emergency measures and training; • Safe re-fuelling procedures; • Minimize plant running times;	Daily spot checks	During construction period	20,000	Project supervisor. Contractor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Fire safety and general accidents	Working conditions, fire related incidents and accidents, pollution.	• Penal code • Public health act chapter 242 • OSHA, 2007	• Compliance with labour laws and health and safety committee rules; • Provision of PPE (personal protective equipment) • Secure / screen hazardous areas; • Provision of fire suppression equipment; • "No smoking" signage Prominently displayed; • Provision of First Aid box facilities; • Training in fire response	Daily spot checks	During construction period	10,000	Project supervisor. Contractor.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost ('00Khs.)	Responsibility
Project Hand-Over and Operational Phase	Farm environmental performance	Operational impacts	• EMCA	• Carry out audit for irrigation Farm on completion; • Ensure all mitigation measures are implemented	Audit report	After construction and their after on yearly basis	500,000	Environmental scientist.
	Health and safety risks	Impact on occupational health & safety of Farm residents and visitors.	• OSHA, 2007	• Display operating procedures for various equipment and facilities; • Provide hazard warning signs. • Provide PPEs and train farmers on use • Provide MSDSs for all chemical used	Documented procedures and programme	continuous	10,000	Management

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Future environmental protection	Any impact arising	• EMCA	• Environmental monitoring procedures	Documented procedures and programme	Yearly	-	management.
	Water conservation	Water consumption	• EMCA • Public health act	• Train Farm beneficiaries in appropriate water conservation techniques; • Monitoring consumption; • Adherence to regular / maintenance schedules.	Monthly reporting	continous	-	management.
	Soil erosion	• Loss of fertile soil; • Sedimentation of river and streams.	• Agriculture act • Lakes and rivers act; • EMCA	• Plant trees to stabilize river banks and protect intake point (50m ; • Stabilize high slopes with terraces and grass; • Train on appropriate soil conservation techniques.	Monthly reporting	Immediately after construction		management.

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
Project Hand-Over and Operational Phase	Area of concern	Environmental social /issues	Standards and guidelines	• Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.'00)	Responsibility
	Water logging and salinization	Loss of soil productivity.	• Agriculture act • EMCA	• Train farmers on correct water application rates	Annual reporting	continuous	-	management.
	Use and storage of chemicals	Increased risk of poisoning.	• Pest control products act.	• Establish and periodically review material safety data sheets (MSDS's) for chemical use in the Farm and train farmers on storage requirements; • Train farmers on the use of PPE and encourage its use.	Monthly reporting	Immediately the project becomes operational	30,000	management

	Area of concern	Environmental social /issues	Standards and guidelines	Management and mitigation	Monitoring requirements /indicators	Time frame	Estimated Cost (Khs.)	Responsibility
	Farm maintenance / impacts on residents and neighborhood	• Leakage and water losses; • Visual impacts; • Health and safety; • Water quality	Local Government act	• Maintenance of irrigation conveyance, distribution and application system; • Maintenance of access routes; • Manage solid wastes and dispose appropriately; • Maintain landscape areas; • Waste water from washing sprays equipment and farm produce should be properly disposed of. • Monitor water quality, both in the river and in the drainage channels	Monthly reporting	continuous	-	management

9.2 Monitoring

The management should monitor the irrigation for environmental stewardship. It should liaise with the Kilifi County NEMA office, to ensure that operations are done in an appropriate and acceptable manner and relevant records maintained. In addition, there should be records on:

- Water abstraction
- Health and safety reviews
- Resource use and status of conservation for the Farm
- Environmental laws level of compliance
- Farm maintenance schedules, repairs and modifications made to the design if any.

Table 9.2: Proposed Environmental Monitoring Plan

Environmental Issue / Impacts	Standard / legal requirement	Who is responsible	Time frame
a) Water Quality and Pollution • Sedimentation • Bacteriological • pH • Nitrates • Sulphates • Conductivity • Sodium Absorption Ratio (SAR)	• Turbidity • NIL NTU • Total Dissolved Solids= 300 mg/L • Faecal Coliforms = NIL/100ml • Total Coliforms =NIL/100 ml • 6.5-8.5 (pH Scale) • 10 mg/L • 400 mg/L • 1500 µS/cm • 6.0	**MGT/MWI** **MGT** **MGT/MWI**	• Turbidity during long and short rains • Every 3 months • Every 3 months • Annually
b) Low River Flows	96 % dry flow	**WRMA**	• Monthly
c) Farming	Agriculture Act Cap 318 (Basic Land Usage Rules) Subsidiary 6 ,Pgs 99: "Any person who cultivates any land of which the slope exceeds 12 per cent and does not exceed 35 per cent, when the soil is not protected against erosion shall be guilty of offence"	**Ministry of Agriculture**	• Annually

Environmental Issue / Impacts	Standard / legal requirement	Who is responsible	Time frame
d) Human Activity	No legal requirement	**Ministry of Agriculture**	• Annually
e) Farming Practices	Dig across hills, terracing and planting Napier grass	**Ministry of Agriculture**	• Annually
f) Human –Wildlife Conflicts	Zoning by separating wildlife from human settlements areas Quantification of river volumes flowing downstream	**Kenya Wildlife Services**	• Annually
g) Enterprises undertaken	As per the project design	**Ministry of Agriculture and Ministry of Livestock and Fisheries**	• Annually

Table 9.3.: Proposed Environmental Training Plan

Environmental Issue /impacts	Trainer	Trainee / Beneficiary	Period		
			Planning	Training	Implementation
Sensitization on good agricultural practices	Extension services, Ministry of Agriculture	Sabaki WRUA	2 weeks	2 weeks	30 days
Sensitization on catchments conservation measures	Extension services, Ministry of Agriculture, Ministry of Environment and Natural Resources, and WRMA	Sabaki River WRUA Catchments	1 month	2 weeks	Continous
Boiling of Water for Domestic uses	Public Health Officer, Ministry of Health	WRUA	-	-	continuous
Periodic Scouring	Ministry of water and Irrigation	- -	-	-	After every rain season

10PROJECT BUDGET ESTIMATE FOR TFL

From the Bill of Quantities provided the estimated cost of the project by Tembo Farming is to be implemented over a period of 3 years at an investment of app. US$ 35 million **(Ksh. 3.5 Billion)**

11CONCLUSION AND RECOMMENDATIONS

The result of this EIA report has indicated that most of the potential negative impacts to be generated can only cause irreparable damage to the environment and human health if the mitigation measures are not implemented as recommended.

The sustainability of the proposed project will be ensured by compliance with regulatory legislation regarding the proposed development.

Policies and recommendations

The proponent must comply with the Water Act, 2002 on the provision of agriculture/irrigation and use of water resources. The use of energy efficient equipment and use of approved materials are all important in ensuring the sustainability of the proposed project.

i. Environmental problems in the Sabaki River ecosystem are intertwined and so approaches to address them should be integrated.
ii. All institutions in the ecosystem are affected by these problems or contribute to them and so they should be involved in seeking solutions.
iii. There is no one solution to the environmental problems. A range of approaches has to be employed to address these problems.
iv. Those communities residing in the semi-arid part are the poorest and most vulnerable. As such they should be cushioned against the effects of reckless resource use practices upstream.
v. Community empowerment in form of training is important to addressing environmental problems in the area.
vi. Success of environmental conservation efforts will be realized only to the extent poverty alleviation in the area will be addressed.

The positive impacts are highly rated and will benefit all stakeholders especially local residents. The project proponents have promised to adhere to prudent implementation of the environmental management plan. They are obtaining all necessary permits and licenses from the relevant authorities and have qualified and adequate personnel to implement the project as proposed. They have proposed adequate safety and health mitigation measures as part of the relevant statutory requirements

They should therefore be licensed to implement this project subject to adherence to the environmental management plan proposed in this report and the statutory requirements.

ANNEXURES

i. Certificate of Incorporation

ii. PIN Certificate

iii. Site Location Map

iv. Land Ownership Documents

v. List of Lead Agencies Consulted

vi. Lead Agencies Consultation Notes

vii. Public Participation Meeting

viii. Public Consultations Report

ix. TFL Response to Public Concerns

x. TFL Master Plan

I. Certificate of Incorporation

No. PVT:2016/017154

CERTIFICATE OF INCORPORATION

I hereby CERTIFY that -

TEMBO FARMING LIMITED

is this 4th day of July, 2016 Incorporated under the Companies Act. 2015 and that the Company is PRIVATE LIMITED BY SHARES.

Registrar of Companies

II. PIN Certificate

KENYA REVENUE AUTHORITY

www.kra.go.ke

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

Certificate Date : 05/07/2016

Personal Identification Number
P051599304M

This is to certify that taxpayer shown herein has been registered with Kenya Revenue Authority

Taxpayer Information

Taxpayer Name	TEMBO FARMING LIMITED
Email Address	ACCOUNTS@TEMBOFARMING.CO.KE

Registered Address

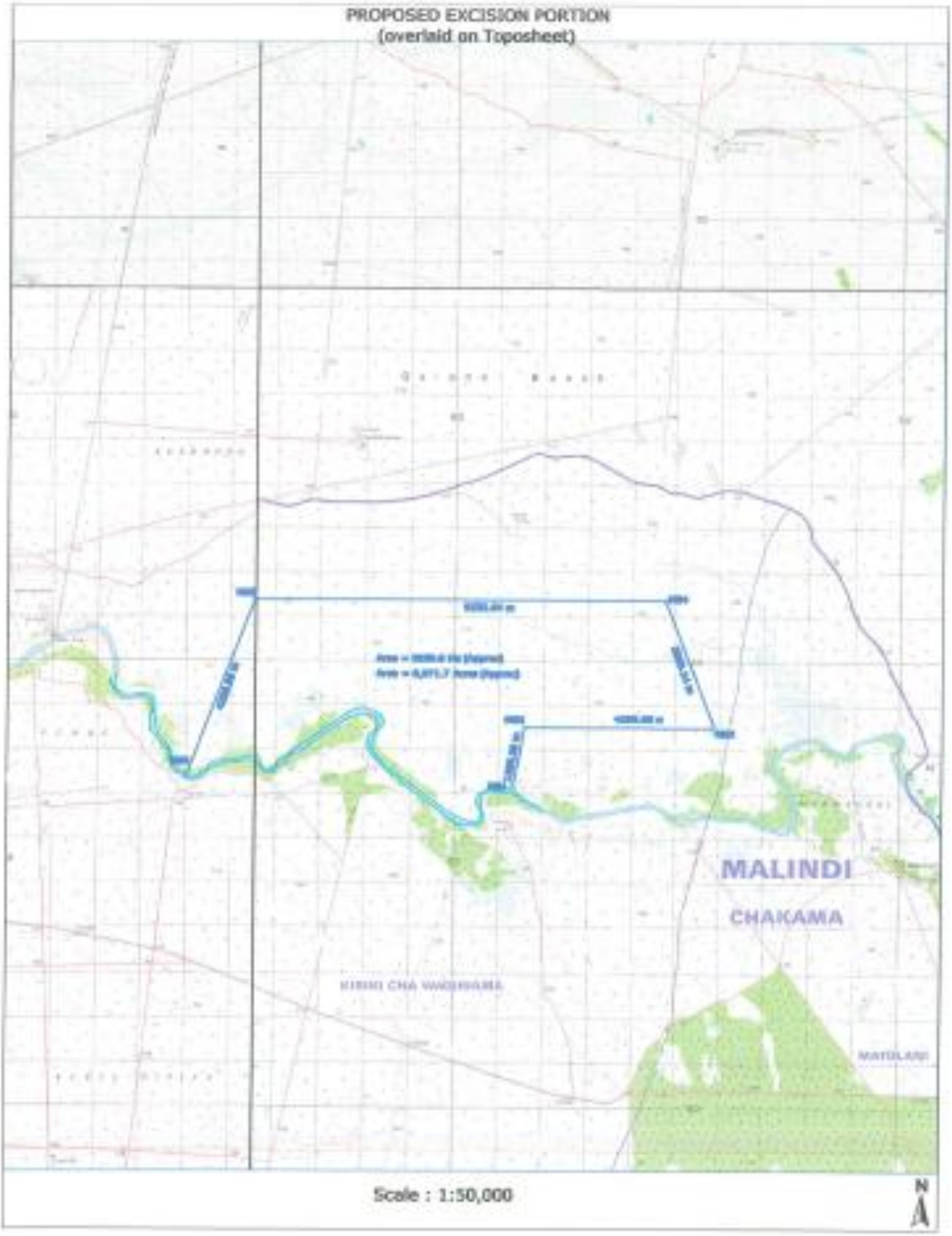
L.R. Number :	**Building :** OIL SEALS AND BEARING CENTRE
Street/Road : DAR-ES-SALAAM	**City/Town :** NAIROBI
County : Nairobi	**District :** Makadara District
Tax Area : Industrial Area	**Station :** East of Nairobi
P. O. Box : 18402	**Postal Code :** 00500

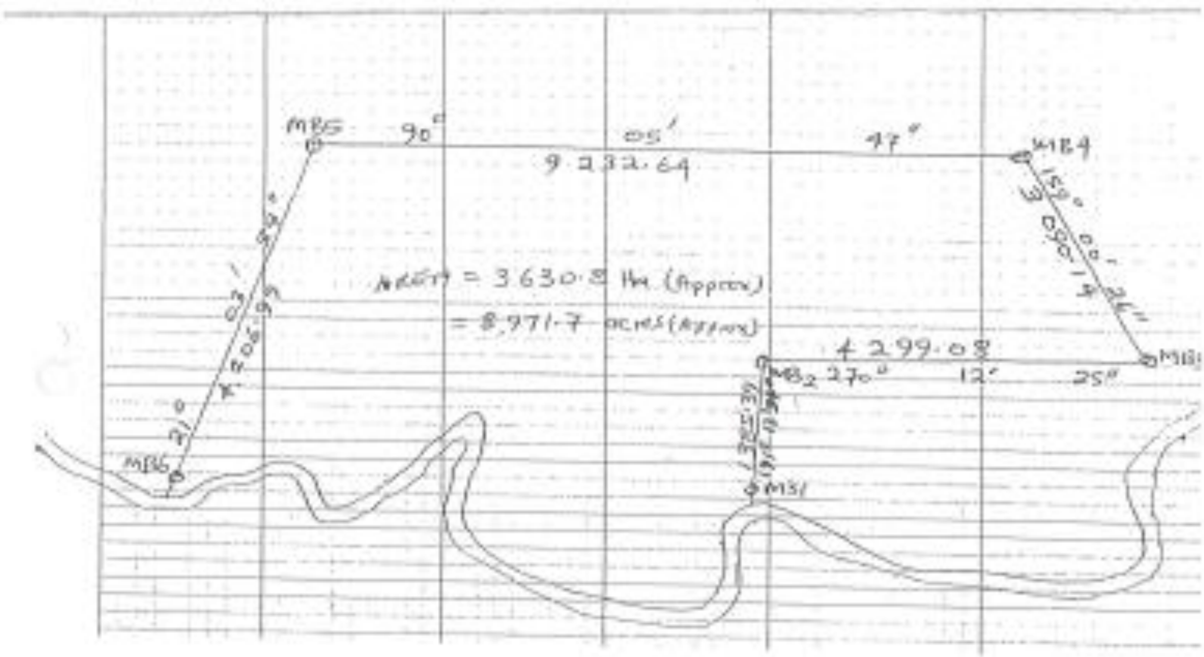
Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Income Tax - Company	05/07/2016	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end month is December unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

III. Site Location and Layout




MB5
90°
05'
47"
9.232.64
MB4
AREA = 3630.8 Ha (Approx)
= 8,971.7 acres (Approx)
4299.08
MB2 270°
12'
25"
MB1
MB3
MB6

IV. Land Ownership Documents

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT
(*No.* 3 *of* 2012, *Section* 108)
THE LAND ACT
(*No.* 6 *of* 2012)
THE REGISTRATION OF TITLES ACT (*Cap.* 281) (*Repealed*)
THE GOVERNMENT LAND ACT (*Cap.* 280) (*Repealed*)
THE LANDS TITLES ACT (*Cap.* 282) (*Repealed*)

CERTIFICATE OF TITLE

Title No. CR. 64733

Term: 99 Years: From: 1.5.2009

Annual Rent Kenya Shillings: 123,000 P.A. (Revisable)

I hereby certify that EXPRESS COMPANY LIMITED

of P.O. Box 18809 - 00500 NAIROBI.
in the Republic of Kenya, pursuant to section 108 of the Land Registration Act is/are now registered proprietor(s) as lessee(s) from the Government of the Republic of Kenya for the term of 99 years from the 1ST day of MAY two thousand and NINE of

ALL that piece of land situate in the MALINDI Municipality in the KILIFI District containing by measurement 3382.0000

hectares/acres (less road reserve of Ha/Ac) or thereabouts and being land Reference Number 29837 (original Number) as delineated on Land Survey Plan Number 355745 annexed hereto. **SUBJECT** however to the revisable annual rent of shillings 123,000 and to the Act(s) special conditions, Encumbrances and other matters specified in the Memorandum hereunder written.

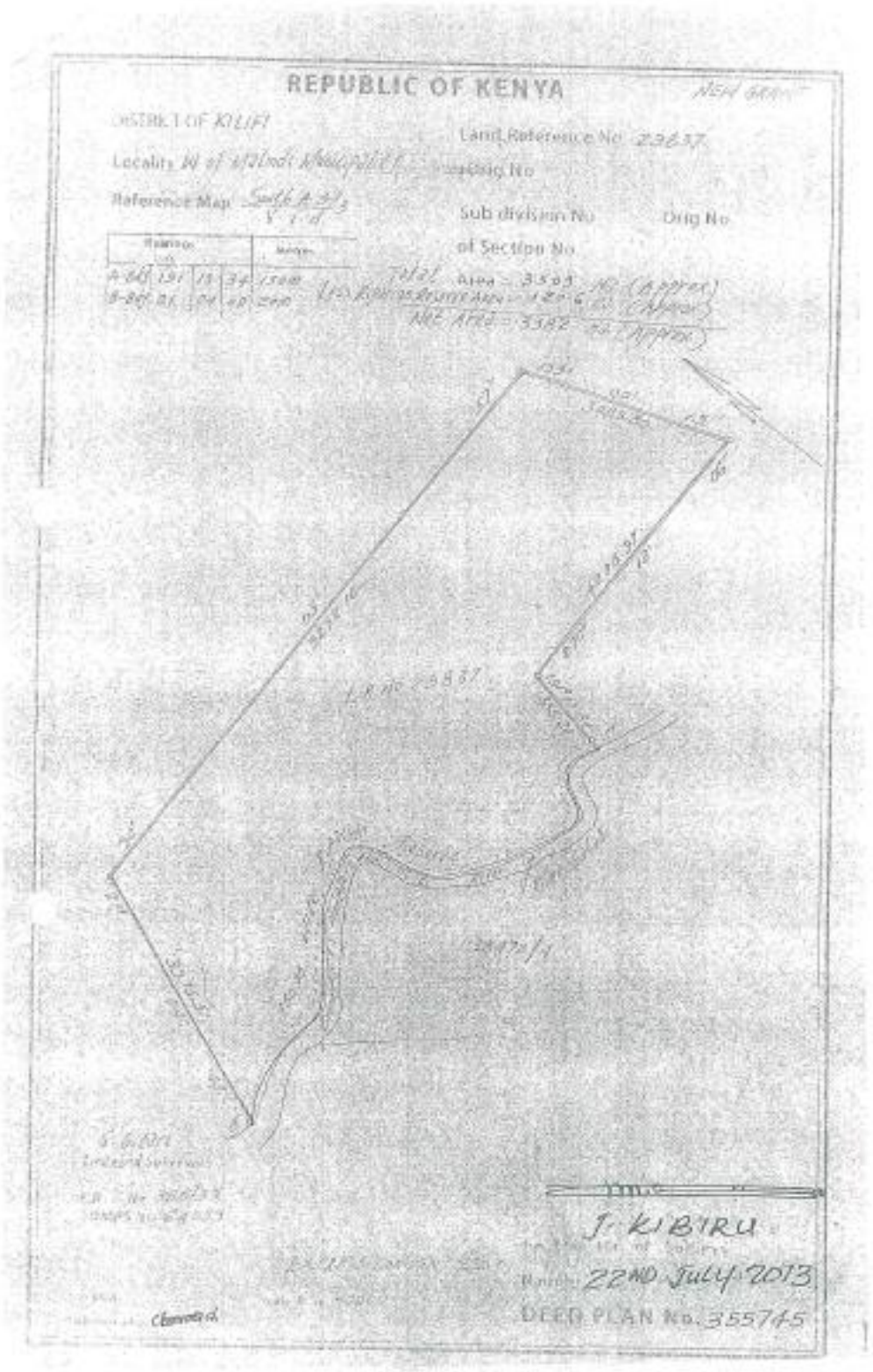
IN WITNESS whereof I have hereunto set my hand and seal this 25TH day of MARCH Two Thousand and FIFTEEN.

Registrar of Titles
S. K. Muvangi *303

GPK (L) 816–30m–1/2015

MEMORANDUM

1. The Land Registration Act, *No. of* 2012
2. The Land Act *No.* 6 of 2012
3. The Special conditions contained in Lease No.....
4. The Government Land Act (*Cap.* 280) (*Repealed*)
5. The Registration of Titles Act (*Cap.* 28) (*Repealed*)
6. The Land Titles Act (*Cap.* 282) (*Repealed*)


REPUBLIC OF KENYA
Land Reference No 23837
Locality
Reference Map
Sub division No
Orig No
of Section No
Total Area 3503
J. KIBIRU
22ND July 2013
DEED PLAN No. 355745

FORM LA

LA No. 6 of 2012
(to be completed in quadruplicate)
Presentation Book Date received for registration: Registration Fees: Ksh. ....

Paid on ..... 20..... Receipt No: .....

DISTRICT LAND REGISTRY MOMBASA DATE: 25 MAR 2015 TIME: 12.00 D. R. No. 291

CF NO.272944

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT
(*No.* 3 *of* 2012)
THE LAND ACT
(*No.* 6 *of* 2012)
REGISTERED LAND ACT (*Repealed*)
REGISTRATION OF TITLES ACT (*Repealed*)

LEASE

(This LEASE is issued pursuant to the transitional provision in Sections 160 and 161 of the Land Act and Section 108 of the Land Registration Act)

REGISTRATION UNIT ..MOMBASA..... PARCEL No....LR.NO.29837.....

The COUNTY GOVERNMENT OF..KILIFI.....

in consideration of the sum of Kenya Shillings .4935000.00.....

.....

by way of stand premium paid on or before the execution hereof

HEREBY LEASES to .EXPRESS COMPANY LIMITED, a limited liability company duly .....

.....incorporated under the Provisions of the Companies Act (Cap 486) of the Laws of Kenya.....

.....of NAIROBI (Post Office Box Number 18809-00500).....

hereinafter called the lessee .

ALL THAT piece of land comprised in the Registry Index Map No..... /Deed Plan No ...355745.containing by measurement approximately .3382.0000..... hectares or thereabouts for the term of .....99..... years

from the .....1st..... day of .....May..... 2009

at the annual rent of Kenya shillings ..123,000(Revisable)..... w.e.f.1/5/2009. payable

in advance on the first day of January in each year and subject to the following special conditions

GPK (L) 709-10m-11/2014

SPECIAL CONDITIONS

1. No buildings shall be erected on the land nor shall additions or external alterations be made to any buildings otherwise than in conformity with the plans and specifications previously approved in writing by the County Government. The County Government shall not give its approval unless it is satisfied that the proposals are such as to develop the land adequately and satisfactorily.

2. The Lessee shall within six (6) calendar months of the actual registration of the lease submit in triplicate to the County Government building plans (including block plans showing the positions of the buildings and system of drainage for the disposal of the the sewage, surface and sullage water), drawings, elevations and specifications of the buildings the Lessee proposes to erect on the land and shall within 48 months of actual registrations of the lease complete the erection of such buildings and the construction of the drainage system in conformity with such plans, drawings, elevations and specifications as amended (if such be the case) by the PROVIDED that notwithstanding anything to the contrary contained in or implied by the Land Act no 6 of 2012 if default shall be made in the performance or observance of any of the requirements of this condition it shall be lawful for any person authorized by it on behalf of the National and County Governments to re-enter into and upon the land or any part thereof in the name of the whole and thereupon the term hereby created shall cease but without prejudice to any right of action or remedy of the National and/or County Government in respect of any antecedent breach of any conditions herein contained.

3. The Lessee shall maintain in good and substantial repair and conditions all buildings at any time erected on the land.

4. Should the Lessee give notice in writing to the County Government that the lessee is unable to complete the buildings within the period a foresaid the County Government shall at the lessee's expense accept a surrender of land comprised herein PROVIDED FURTHER that if such notice is aforesaid shall be given (1) within twelve months of the actual registration of paid in respect of the land or (2) at any subsequent time prior to the expiration of the said period the Government shall refund the Lessee twenty-five per centum of the said stand premium. In the event of notice being given after the expiration of the said building period no refund shall be made

5. The land and buildings shall always be used for **Industrial development and Agricultural purposes**

6. The buildings shall not cover.....**more than 90 % of the**.....area of the land or such lesser area as may be prescribed by the County Government Development Control Regulations

7. The land shall not be used for any purpose which the National or County Government considers to be dangerous or offensive

8. The Lessee shall not subdivide, change or extend use of the land, without prior written consent and approval of the National Government or County Government.

9. The Lessee shall not sell, transfer, sublet, charge or part with possession of the land or any part thereof for any building thereon except with prior consent in writing of the County Government.

10. The Lessee shall from time to time pay to the County Government on demand such proportion of the cost of maintaining all roads and drains serving or adjoining the land as the County Government may assess.

11. The Lessee shall pay such rates, taxes, charges, duties, assessments or outgoings of whatever descriptions as may be imposed charged or assessed by the Commission on behalf of the County Government upon the land or the buildings erected thereon, including any contribution or other sum paid by the Commission in lieu thereof.

12. The National Government or respective County Government or such other person or authority as may be appointed for the purpose shall have the right to enter upon the land and lay and have access to water main service pipes and drains, telephone wire, fiber optic and electric mains of all descriptions whether overhead or underground and the Lessee shall not erect any buildings in such a way as to cover or interfere with any existing alignments of main or services pipes or fiber optic or telephone wires and electric mains.

13. The County Government may revise the annual ground rent payable. Such rental shall be at a rate to be determined by the County Government of the unimproved value of the land.

Dated this.....5th.....day...FEBRUARY.....20..15.....

SIGNED BY: .....SARAH NJUHI MWENDA.....

CHIEF LAND REGISTRAR

SIGNED by the Lessee
IN THE PRESENCE OF:

Passport size Colored photograph

Signature: .....

I.D/PASSPORT NO: .....

PIN NO. .....

I CERTIFY that the above-named appeared before me on the 24TH day of FEBRUARY, 2015 and being known to me/being identified by .....
acknowledged the above signature or marks to belong to the lessee and that the lessee freely and voluntarily executed this instrument and understood its contents.

J. M. WAMBUGU
ADVOCATE, COMMISSIONER FOR OATHS AND NOTARY PUBLIC
P.O. Box 2027-00200
NAIROBI

Signature and Designation of Person Certifying

REGISTERED this 25th day of MARCH 2015

Land Registrar

Name .....

DRAWN BY: S. K. Mwangi '303

LAND REGISTRAR
P. O. BOX 30089
NAIROBI

42CC3EC8-9C08-43F5-808F-44D6B108E19A

DATED THE 19th DAY OF OCTOBER, 2016

MEMORANDUM OF UNDERSTANDING

Between

TEMBO FARMING LTD

AND

EXPRESS COMPANY LIMITED

LAND REFERENCE NUMBER
LR NO. 29837

MEMORANDUM OF UNDERSTANDING (MOU)

THIS MOU is made this **19th** day of **October,** Two Thousand and SIXTEEN

BETWEEN

TEMBO FARMING LTD, a company limited by shares and incorporated in the Republic of Kenya, having it's registered office at No. 20, Dar es salaam Road, Industrial Area, Nairobi, Kenya and of Post Office Box 18402 - 00500, Nairobi hereinafter called **"TFL"** which expression shall where the context so admits include its representatives, successors in title and assigns of the **ONE PART**

AND

EXPRESS COMPANY LIMITED a company limited by shares, and incorporated in the Republic of Kenya having its registered office at 2nd Floor, OSBCL House, Industrial Area and of Post Office Box 18809-00500, Nairobi, Kenya hereinafter called **"ECL" "the Lessor"** which expression shall where the context so admits include its successors in title to the Property (defined below) and assigns of the **OTHER PART**;

WHEREAS:

A. ECL is the sole lessee having exclusive right from the Government of the Republic of Kenya of ALL THAT piece of land situated approximately 9 Kms of West of Matolani Trading Centre, Matolani Area, Malindi District of the Republic of Kenya containing by measurement Eight Thousand Three Hundred Fifty Seven and Decimal One Zero (8,357.10) acres (equivalent to 3382 Hectares as indicated on the Title Deed) or thereabouts known as Land Reference Number 29837 being the premises comprised in a Grant registered in the Land Titles Registry at Mombasa as Number C.R 64733 which said piece of land with the dimensions abuttals and boundaries thereof is delineated on the plan annexed to the said Grant and more particularly on Land Survey Plan Number 355745 deposited in the Survey Records Office at Nairobi and thereon bordered red AND IS HELD by the Lessor for the un-expired term of Ninty Nine (99) years from the First day of May Two Thousand and Nine (01.05.2009) SUBJECT to:

TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

a) payment in advance on the first day of January each year of the annual rent of Kenya Shillings One Hundred and Twenty Three Thousand Only (Kshs 123,000/-) Revisable.

b) the provisions of the Sections 160 and 161 of the Land Act and Section 108 of the Land Registrations Act;

c) the special conditions contained in the said Grant.

B. ECL confirms that the said Property is free from all encumbrances and ECL is free to and capable of handing over vacant possession to TFL and/or its nominees.

C. TFL intends to set up a Sugarcane plantation project (**"Project"**) to produce Sugarcane and such other plantation; a Livestock & Dairy project ("the Proposed Use") as well as related infrastructure and Corporate Social Responsibility activities such as residential complex, educational & training facilities, medical facilities, handicrafts development centre etc. ("the Related Uses").

D. ECL undertakes to obtain specific change of user so that the said Property is fit for the Proposed Use and TFL agrees to ascertain the same before execution of the Sub-Lease (defined below).

E. ECL has agreed to Sub-Lease to TFL or their nominees a part of the said Property measuring Eight Thousand One Hundred Fifty Four and Decimal Four Eight (8154.48) acres (equivalent to 3300 hectares as indicated on the Title Deed) (**as shown in attached Master Site Layout Plan, entire area within boundary marked MB1 to MB6, except an area marked inside the layout with a white square box, attached hereto as Annex 1**) for the term and subject to the covenants, agreements, conditions, stipulations and provisions hereinafter contained.

TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

NOW THIS MOU WITNESSES AS FOLLOWS:

1. TFL will, subject to carrying out the requisite due diligence and being satisfied of the same as also subject to the other terms and conditions of this MOU, take on sub-lease from ECL the Property measuring Eight Thousand One Hundred Fifty Four and Decimal Four Eight (8154.48) acres (equivalent to 3300 hectares as indicated on the Title Deed) for a period of Forty Five (45) years, renewable at mutually agreed terms and conditions. The sub-lease period will start on the date on which TFL takes possession of the land following grant of all requisite approvals and consents from the Government of Kenya (**"GOK"**), County Government of Kilifi (**"CGK"**), local bodies and any other approvals, tying up of water arrangements/rights, power offtake agreements, any other Project essentials, but before financial closure, which for purposes of this MOU means receipt by TFL of debt and equity funding for purposes of the Project.

2. ECL will grant to TFL a sub-lease of the said Property as stated in Clause 2 above (the "**Sub-Lease**").

3. TFL will pay pro-rata to the area occupied by it, first-stage lease rent equivalent to the lease rent payable by ECL to the GoK which is presently Kenya shillings One Hundred and Twenty Three Thousand (Kshs 123,000/-) per year (Revisable) till the date on which TFL achieves financial closure and breaks ground for the project.

4. TFL will pay a basic sub-lease rent of KSH 1,200 or United States Dollars 12 equivalent (whichever may be lower) per acre for the said Property at the beginning of each year starting from the date of breaking ground post financial closure for the first three years. The lease rent shall be increased to KSH 2,000 or United States Dollars 20 equivalent (whichever may be lower) from the fourth year onwards and increased by Ten (10) percent after every three (3) years thereafter.

5. Subject to clause 9, the broad terms of the lease are as per **Annex 2**.

TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

6. ECL will procure from GOK, CGK and the relevant government bodies and/or authorities, their agreement, to become a confirming party to the sub-lease deed to be executed pursuant to this MOU, wherein they commit to ensure that the unencumbered possession and use of the said Property by TFL for the Project, the Proposed Use, the Relevant Uses and other related activities, is not jeopardized for any reason whatsoever including failure by ECL to meet its obligations.

7. ECL and TFL shall bear the costs in connection with the preparation and completion of Lease Deed and a counterpart thereof together as also all stamp duty and registration fees, in the manner mutually agreed between them.

8. ECL hereby covenants that it shall not, following execution of this MOU and for as long as this MOU is in force, alter the current list of shareholders by either adding new or removing current shareholders until the Sub-Lease is executed by all parties. If any such change occurs, TFL shall be entitled to terminate this MOU and will not be bound by any of the covenants, terms and conditions herein.

9. ECL hereby covenants that it shall not, following execution of this MOU and for as long as this MOU is in force, change the composition of the board of directors unless absolutely necessary, and if any new directors are so appointed, they shall be selected from the current shareholders of ECL and TFL shall immediately be notified of any such changes.

10. ECL agrees to enter into and cause the relevant government body/authority to join as confirming party, to execute, the Sub-Lease to record the detail terms and conditions of sub-lease. An indicative draft of the Sub-Lease is annexed hereto as Annexure 2. It is being clarified that TFL shall be entitled to modify and finalise the same in such form and content as may be desired by TFL and as may be required in the interest of the project, save that TFL does not have the right to reduce the sub-lease rent given in Clauses 4 above. ECL shall execute all further documents and complete all formalities in that regard, to the satisfaction of TFL.

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TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

11. ECL represents that (a) it has an exclusive and a valid and subsisting title to the said Property granted by the Government of Kenya; (b) it is in exclusive and vacant possession of the said Property; (c) there are no impediments or restraints on its ability to enter into this MOU and to execute the Sub-Lease as contemplated herein; (d) all corporate actions have been taken for authorization of the transaction contemplated by this MOU; (e) all representations and warranties contained in the draft Sub-Lease being Annexure 2 (which representations and warranties are deemed to be incorporated herein by reference); (f) the Title Deed for the said Property is valid.

12. ECL hereby indemnifies and agrees to keep TFL fully indemnified from all costs and consequences for any breaches of representations, warranties, or covenants hereunder and under the Sub-Lease or any other documents executed pursuant hereto, notwithstanding the due diligence carried out by TFL and its advisors. The representations, warranties and indemnities will survive the expiry or termination of this MOU and the Sub-Lease.

13. TFL agrees to give priority for employment to local community subject to their requirements of qualification, competence, attitude to work and behavior requirements being met.

14. TFL agrees to appoint a Liason Officer from the community subject to their requirements of qualification, competence, attitude to work and behavior requirements being met.

15. The obligation of TFL to enter into the Sub-Lease is subject to completion of certain conditions precedent to their full satisfaction including the following:

    (a) Conduct and completion of due diligence by TFL and its advisors. ECL shall be bound to provide all information/copies of documents called for by TFL and its advisors.

TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

(b) ECL validly passing a resolution of its board of directors and also of its shareholders approving the proposed transaction and the entry into by ECL of this MOU, the Sub-Lease and any other ancillary documents in relation to the proposed transaction.

(c) ECL obtaining No Objection Certificate (NOC) or permission from GOK and/or County Government of Kilifi or National Lands Commission, for Sub-Lease to be granted to TFL as aforesaid as also the confirmations as per Clause 6 above.

(d) All approvals including but not limited to a change of user, water abstraction rights and an environmental impact assessment licence being obtained by ECL at its own cost prior to execution of the Sub-Lease and for permitting TFL to use the said Property for the Proposed Use. The cost of which shall be reimbursed by TFL.

(e) Land Control Board consent to the Sub-Lease of the Property or Presidential exemption to the proposed transaction and the Sub-Lease of the Property to TFL or its nominees, in accordance with the provisions of the Land Control Act (Cap. 302 of the Laws of Kenya);

(f) The Sub-Lease Deed being executed before financial closure.

(g) All representations, warranties and undertakings of ECL in this MOU being true.

(h) There being no outstanding or threatened litigations or other proceedings affecting the proposed sub-lease or the said Property.

(i) ECL providing all necessary assistance and support to TFL to obtain all approvals, licenses and permissions in respect of successfully undertaking the Project.

TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

16. Exclusivity & Fidelity

In consideration of the expenses that TFL will incur in pursuing the Project to financial closure, ECL confirms that it will not entertain interest from or enter into discussions with any other party in respect of:

(a) creating any right on the said Property including but not limited to lease, sub-lease, mortgage, sale, transfer or creation of any interest thereon in any other manner and ECL shall be bound to grant TFL the Sub-Lease as stipulated above;

(b) creating any right over ECL's assets (including but not limited to a debenture) or creating any rights over its shares, including but not limited to options to purchase existing shares or subscribed for any shares in ECL or any scheme or sequence of events or transactions whose overall result or objective would be to have such party acquire control of ECL or ECL's assets (including the Property).

17. Confidentiality.

Each party to this MOU shall keep the contents and all discussions and negotiations whether written or oral concerning the subject matter hereof, confidential, save as may be required to be disclosed:

a. By the operation of law
b. For the purpose of getting approvals, licences, permits, etc. from any government, government or statutory bodies and the like.
c. For the purpose of carrying out studies and formulating plans to evaluate the feasibility, carry out design & engineering, prepare Detailed project reports, Environment assessment reports and the like.
d. To potential providers of debt and equityAs may be required for the purpose of implementing the project

TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

18. Breach of this MOU by ECL will result in TFL being entitled to specific performance as well as payment from ECL of three (3) times the expenses incurred by TFL in pursuing the Project which ECL agrees and accepts as being reasonable pre-estimate damages for the efforts put.

19. Notwithstanding the foregoing, neither party shall be responsible or liable for delay in its performance resulting from events or occurrences beyond its control.

20. This MOU will be governed by the laws of Kenya. Any dispute between the parties shall be settled by an arbitrator agreed to by the parties or failing such agreement, shall be selected by the Chairman for the time being of The Chartered Institute of Arbitrators, Kenya Branch, Nairobi. The Arbitrator shall be requested to settle any such dispute and his decision shall to the extent permissible by law be final and binding upon the parties to such dispute and its costs shall be borne equally between the parties. The High Court of Kenya shall have jurisdiction in respect of any interim relief sort in respect of this MOU.

21. Should TFL decide not to proceed with the Project, or is unable to achieve financial closure by the end of 3 years from the date hereof, this MOU will be terminated after giving one month notice to ECL and, without any cost to either party.

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TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

IN WITNESS WHEREOF this MOU has been executed the day and year first hereinbefore-written.

SEALED with the Common Seal of)
EXPRESS COMPANY LIMITED)
and delivered in the presence of:)

Director

EXPRESS COMPANY LTD.
P. O. Box 18809 - 00500
NAIROBI, KENYA
Tel: (254 - 20) 2613244 / 5 Fax: 6535330
Email: info@expresscompanyltd.com

Before me
ADVOCATE

I CERTIFY that **Jitendrakumar Amritlal Shah** being the Directos of **EXPRESS COMPANY LIMITED** appeared before me on 18th October 2016 and being known to me/being identified by ..... of ..... acknowledged the above signature or mark to be his and that he had freely and voluntarily executed this instrument and understood its contents.

.....
ADVOCATE

SEALED with the Common Seal of)
TEMBO FARMING LIMITED)
and delivered in the presence of:)

Director

TEMBO FARMING LTD.
P. O. Box 18402 - 00500
NAIROBI, KENYA
TEL: +254 - 20 - 2613244 / 5
EMAIL: info@tembofarming.co.ke

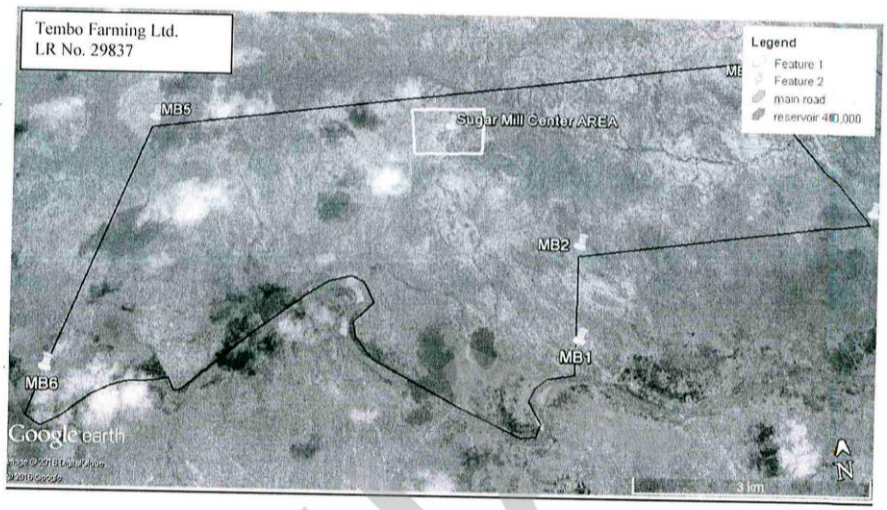
Before me
ADVOCATE

I CERTIFY that **Vinod Vora** being the Director of **TEMBO FARMING LTD** appeared before me on 18th October 2016 and being known to me/being identified by..... of ..... acknowledged the above signature or mark to be his and that he had freely and voluntarily executed this instrument and understood its contents.

.....

ANNEXURE 1

(Plan of the Property)



TEMBO FARMING LTD. P.O. BOX 18402-00500 NAIROBI

EXPRESS COMPANY LIMITED

V. List of Lead Agencies Consulted

TEMBO SUGAR COMPLEX

DATE : 1ST & 2ND MARCH, 2017

No.	NAME	DESIGNATION	COMMENTS	SIGNATURE
1	BABRA SANTA KITAO	COMMUNITY DEVELOPMENT ASSISTANCE	Good	
2	NGETHA DOUGLAS KAFAMA	SOCIAL WORKER	GOOD	
3	PETER E. NDOKO	CDA	EXCELLENT PROJECT	COUNTY DIRECTOR - CULTURE DEPT. OF ICT CULTURE & SOCIAL SERVICES 01 MAR 2017 COUNTY GOVERNMENT OF KILIFI
4	STEPHEN MWAMBAGHINA	ON FISHER ATTACHMENT	GOOD.	
5	PRISCA GONA	WELFARE OFFICER	Good Luck	

	Thomas M. Makanga	County Director Water Affairs	Good work a healthy success	COUNTY GOVERNMENT OF KILIFI COUNTY DIRECTOR WATER AFFAIRS WATER, ENVIRONMENT, FORESTRY AND NATURAL RESOURCES [signature]
7	Mwachitu Kiringi	CEC – WFENR & SWM & Ag CEC – ALD & F	I highly encourage that respondents to this study come from the local community where the investment will occur.	1/03/2017 COUNTY GOVERNMENT OF KILIFI COUNTY EXECUTIVE COMMITTEE MEMBER WATER, FORESTRY, ENVIRONMENT [signature] 03 MAR 2017 AND NATURAL RESOURCES P. O. Box 519 - 80108, KILIFI - KENYA
8	Samuel Lopokiyit	NEMA CDE Kilifi	Good consultation Adhere to EMCA & other legislations & other federal laws	COUNTY DIRECTOR OF ENVIRONMENT KILIFI COUNTY 03 MAR 2017 P.O. Box 247, KILIFI [signature]
9				
10				

VI. Lead Agencies Consultation Notes

i. Meeting held on the 27th February 2017 and 28th February 2017 with the chief Chakama Location and Assistant chief Matolani Location.

Discussion and Deliberation of the Meeting

1. The local administrations were informed of the proposed sugarcane plantation and milling factory at Hawa wanje.
2. The EIA consultant explained the need to conduct public participation and consultation meeting with the affected households and village elders to solicit their views and opinions about the proposed project.
3. Issues of continuous consultation and project acceptance by the host community were highly emphasized to prevent hostility towards the project during implementation
4. The local administration were informed that the proposed sugarcane plantation and mill will be a benefit to the community in terms of alleviating poverty, food security
5. All the miji sita (6 affected households) will be compensated for their loss of land, crops and their livelihood improved and restored more than their previous status: Tembo Sugar Complex plans to relocate them within the same land but at the edge and all the social amenities will be provided.
6. It was agreed that the public baraza to be held on Friday 3rd March 2017 at Hawa wanje Primary school starting from 1100hours.

ii. Meeting held in Kilifi County with the County Director Water Affairs for the County Government of Kilifi on 1st March 2017.

Introduction

This consultation meeting took place at the office of County Director in charge of water affairs in the department of Water, Forestry, Environment and Natural Resources Department. It was attended by the County Director Water Affairs Hon. Thomas M. Makanga, the EIA consultants from HIAGRO EIA and Tembo Sugar Complex Representative Mr. Ben Mutua.

The EIA consultant and Tembo Sugar Complex Representative introduced themselves thereafter they explained the objectives of the proposed Sugar Farm and Mills Project to the County Director Water Affairs.

It was explained that the proposed project will be located in Matolani Sub Location, Chakama Location in Magarini Constituency. The proposed project was envisaged to cover approximately 8,009 acres of land in Hawa wanje area. The proposed project components are mainly plantation of sugarcane and a sugar mill factory within the same land. It was evident that the sugarcane farm was viable in the area after feasibility studies were conducted. It was agreed during the MOU that was signed at the Kilifi Investment Conference that all the raw materials and end products will be labelled Made in Kilifi and processed on site such as generation of Ethanol, Sugar and other byproducts associated with sugar processing.

The proposed project will abstract water from the Galana River for its use in irrigation and running the sugar mill factory and have plans to build 2 water dams within the land to cover the demand of water especially during the dry seasons.

Tembo Sugar Complex will also incorporate the local people to farm sugar in their respective farms where they will be provided with farm incentives such as fertilizer, sugar seedlings, water pipes for irrigation and milling where the company in return will cut its production cost and share the proceeds with the farmer which is a win win situation for all parties.

Discussions

The County Director Water Affairs was urged to give his views on the proposed project, which he did, a summary of the summary of the consultative exercise is tabled below;

Comments and Issues	Response
Water Demands for the project should be known	Director insisted that the project to leave 2/3 or 3/4 demand of water for the downstream users. Tembo Sugar Complex Representative made it clear that they have identified 2 swamps where they intend to build water reservoirs / dams.
Water Quality	EIA expert was clear that the Hydrological Report showed that only 1/3 of the Galana river water will be used; Both Topographical and Hydrological report will be shared with the county office. Director was concerned about the water quality in terms of turbidity and salinity as they have sunk several boreholes there. Tembo Representative assured the Director that irrigation water will first be directed to ponds which will later be pumped to the irrigation pipelines.
Availability of Power / Energy in the factory	Tembo Representative responded that they have been studying the power lines and it's possible to step down power from Shakahola. They will also use diesel and in the long run produce their own bio energy and Solar
Director Recommendation to the Community	He was categorical that the Sugar Complex Management to ease the burden of the girl child and avail water at the doorstep where possible. Let the mitigation measures be followed to the letter. Solid Waste Management of the factory waste to be disposed procedurally, it was clear that most of the waste will be used for bio decomposition for produce of ethanol and fertilizers.

iii. Consultation Meeting held in Kilifi County with the County Executive Water, Forestry, Environment, Natural Resources and Solid Waste Management and Currently Acting County Executive for Agriculture County Government of Kilifi on 3rd March 2017.

Introduction

This consultation meeting took place at the office of County Executive in charge of Water, Forestry, Environment and Natural Resources Department and currently acting as the County Executive in charge of Agriculture. It was attended by the County Executive as stated above Hon. Kiringi Mwachitu, the EIA consultants from HIAGRO EIA and Tembo Sugar Complex Representative Mr. Ben Mutua.

The EIA consultant and Tembo Sugar Complex Representative introduced themselves thereafter they explained the objectives of the proposed Sugar Farm and Mills Project to the County Executive.

It was explained that the proposed project will be located in Matolani Sub Location, Chakama Location in Magarini Constituency. The proposed project was envisaged to cover approximately 8,009 acres of land in Hawa wanje area. The proposed project components are mainly plantation of sugarcane and a sugar mill factory within the same land. It was evident that the sugarcane farm was viable in the area after feasibility studies were conducted. It was agreed during the MOU that was signed at the Kilifi Investment Conference that all the raw materials and end products will be labelled Made in Kilifi and processed on site such as generation of Ethanol, Sugar and other byproducts associated with sugar processing.

The proposed project will abstract water from the Galana River for its use in irrigation and running the sugar mill factory and have plans to build 2 water dams within the land to cover the demand of water especially during the dry seasons.

Tembo Sugar Complex will also incorporate the local people to farm sugar in their respective farms where they will be provided with farm incentives such as fertilizer, sugar seedlings, water pipes for irrigation and milling where the company in return will cut its production cost and share the proceeds with the farmer which is a win win situation for all parties.

Discussions

The County Executive gave his views and opinion about the proposed project as summarized in the table below.

Comments and Issues	Response
Quality of the EIA Report	He insisted that the report to give real and actual issues on the ground in terms of project acceptance, environmental issues and cultural diversity. All the Project Affected People (PAPs) and project beneficiary should be widely consulted and agree to the process to avoid conflict and delay of the project implementation project. EIA Experts and Tembo Representative assured him that they are using all resourceful avenues to have the project to roll without any hindrances and all the communities will be involved especially the 6 families within the project site.
Water Demands for the project should be known	Director insisted that the project to leave 2/3 or 3/4 demand of water for the downstream users. Tembo Sugar Complex Representative made it clear that they have identified 2 swamps where they intend to build water reservoirs / dams.
Mitigation Measures	He insisted that the mitigation measures should be adhered to and clearly spelt out in the report. The report should be submitted to their office in order for them to comment and review the mitigation measures.
Agro Forestry	The client was advised to increase tree coverage and avoid cutting down indigenous trees hence it will promote climatic conditions of the area and aesthetic beauty.

Comments and Issues	Response
Increase Social Amenities to the community	He insisted that water should be made easily available to the host community within the two villages especially for use of other agricultural activates like vegetables hence enhancing food security in the area. Also increase the social amenities like schools, health care centers, to cater for the rise in population that will be expected during project implementation.
Relocation of the 6 families	County Executive stated that proper procedures to be followed during relocation and that Miji Sita be made to understand why they are being relocation and the benefits to be clearly explained to them to avoid conflict and project delay. The Miji Sita should be given the first priority when it comes to employment and that employment should cater for 90% of the local people. It was clear that the pastoralist community come and go (nomadic lifestyle) hence they should not pose a threat as original land owners.

iv. Consultation Meeting held in Kilifi County with the NEMA Kilifi County Representatives Kilifi on 3rd March 2017.

Introduction

This consultation meeting took place at the office of County Director in charge NEMA in Kilifi County. It was attended by the County Director and three other NEMA officials in the different departments, EIA consultants from HIAGRO EA and Tembo Sugar Complex Representative Mr. Ben Mutua.

The EIA consultant and Tembo Sugar Complex Representative introduced themselves thereafter they explained the objectives of the proposed Sugar Farm and Mills Project to the NEMA officials.

It was explained that the proposed project will be located in Matolani Sub Location, Chakama Location in Magarini Constituency. The proposed project was envisaged to cover approximately 8,009 acres of land in Hawa wanje area. The proposed project components are mainly plantation of sugarcane and a sugar mill factory within the same land. It was evident that the sugarcane farm was viable in the area after feasibility studies were conducted. It was agreed during the MOU that was signed at the Kilifi Investment Conference that all the raw materials and end products will be labelled Made in Kilifi and processed on site such as generation of Ethanol, Sugar and other byproducts associated with sugar processing.

The proposed project will abstract water from the Galana River for its use in irrigation and running the sugar mill factory and have plans to build 2 water dams within the land to cover the demand of water especially during the dry seasons.

Tembo Sugar Complex will also incorporate the local people to farm sugar in their respective farms where they will be provided with farm incentives such as fertilizer, sugar seedlings, water pipes for irrigation and milling where the company in return will cut its production cost and share the proceeds with the farmer which is a win win situation for all parties.

Discussions

The NEMA officials raised a number of issues that the need to be addressed in the ESIA report as summarized below;

Comments and Issues	Response
Biodiversity	Loss of biodiversity and vegetation cover was addressed such that the client will increase the tree coverage and protect the indigenous species and sugarcane will also reduce soil erosion as it's a cover crop.
Protection Galana River	The insisted the client to come up with a clear solid waste management system as the Galana and Sabaki river feeds other downstream users. NEMA officials insisted that the riparian reserve should also be protected. Tembo Sugar Complex has plans to reuse or recycle water and build water reservoirs for use during dry seasons.
Corporate Social Responsibility (CSR)	They insisted the CSR to be clear and that the host community should be given priority as the first beneficiaries when it comes to employment and distribution of resources. Tembo Representative stated that there are plans to build school, health care center and farmers will be given incentives to grow their own sugar cane and which will spur socio- economic development of the area.
Relocation and Compensation of the PAPs	They were informed that adequate measures and continuous consultation are ongoing with the miji sita to ensure their issues are properly taken care of by the client to avoid conflict.
Site Visit	The NEMA official would like to visit the proposed project site before giving their final recommendations on the ESIA reports hence Tembo Sugar Complex will arrange.

v. Consultation Meeting held in Magarini Sub County Offices on 2nd March 2017 with the Sub County Administrator and other community leaders.

Introduction

This consultation meeting took place at the office of sub county administrator in charge of Magarini Sub County, Kilifi County.

The EIA consultant and Tembo Sugar Complex Representative introduced themselves thereafter they explained the objectives of the proposed Sugar Farm and Mills Project to the NEMA officials.

It was explained that the proposed project will be located in Matolani Sub Location, Chakama Location in Magarini Constituency. The proposed project was envisaged to cover approximately 8,009 acres of land in Hawa wanje area. The proposed project components are mainly plantation of sugarcane and a sugar mill factory within the same land. It was evident that the sugarcane farm was viable in the area after feasibility studies were conducted. It was agreed during the MOU that was signed at the Kilifi Investment Conference that all the raw materials and end products will be labelled Made in Kilifi and processed on site such as generation of Ethanol, Sugar and other byproducts associated with sugar processing.

The proposed project will abstract water from the Galana River for its use in irrigation and running the sugar mill factory and have plans to build 2 water dams within the land to cover the demand of water especially during the dry seasons.

Tembo Sugar Complex will also incorporate the local people to farm sugar in their respective farms where they will be provided with farm incentives such as fertilizer, sugar seedlings, water pipes for irrigation and milling where the company in return will cut its production cost and share the proceeds with the farmer which is a win win situation for all parties.

Discussions

The community leaders present were informed that there was a proposed baraza that was going to take place on Friday 3rd March 2017 at Hawa wanje primary school with the local area chief, assistant chief, village elders and the affected households to solicit their views and opinions on the proposed sugar project.

It was explained in detail that the first community meeting was purposes of notifying the affected households of the project and later involve the local leadership that is both the political and county leadership.

However was the meeting proceeded there was a heated debate that the local leaders present felt the consultant should not go on with his public participation and sensitization meeting as agreed earlier; The local MCA insisted that they (political leaders) should first be explained in details the project objectives and components and how the project is going to be of benefit to their people before embarking for grassroot PPC.

The MCA was of the opinion that they should be ones responsible for engaging the community and get their views to avoid hostility towards the project.

At the end of the deliberations it was concluded that the meeting to be postponed to Thursday 9th March 2017 where all the key stakeholders within Matolani Area would be engaged and informed of the public meeting.

All the community leaders present at the meeting wanted to be furnished with the following project details:

1. Copy of Memorandum of Understanding that was signed
2. Project designs
3. Land details that is the title and procedure which was used to acquire it
4. ESIA to be conducted professionally and all parties to be consulted
5. Clear Project Affected People (PAP) list as is on the ground
6. Relocation procedure

VII. Public Participation Meeting

i. List of Participants

No.	NAME	DESIGNATION	TELEPHONE NO.	SIGNATURE
39	BENJAMIN MUIVA	MANAGER (SITE) TEMBO	0722455787	
40	SURAJ GOPINADHAN	HEAD – PROJECT ADMINISTRATION TEMBO	0722525312	
41	R.P. MISHRA	Sr General Manager TEMBO	+919415074039	
42	VINOD VORA	DIRECTOR TEMBO	734898976	
43	DANIEL KIIGE	LEAD EIA EXPERT – HIAGRO	0720556064	
44	LODAH MUCHENA	SOCIOLOGIST – HIAGRO	0721791218	
45	LINDA TAHO	ENV PLANNER / PA – HIAGRO	0713839905	
46	SOLOMON K. MUBASHIRI	SNR. CHIEF GALANA	0714001958	
47	VINCENT YERI LHENGO	WARD ADMIN – ADU	0729289508	
48	SAMSON ZIA KAHINDI	PA. MCA ADU WARD	0701865748	
49	RAYMOND K. FONDO	ASST CHIEF – KISSIKI	0706277274	
50	CHONGO? SARO	mkulima		
51	SAMSON ZIRO WANJE?		0703212828	
52	KATANA CHARO FONDO?	MRDR CHAIRMAN	0720519900	
53	SAIDI MWAKIRINGO	MKULIMA	0711949715	
54	SARO NGOWA	MKULIMA		
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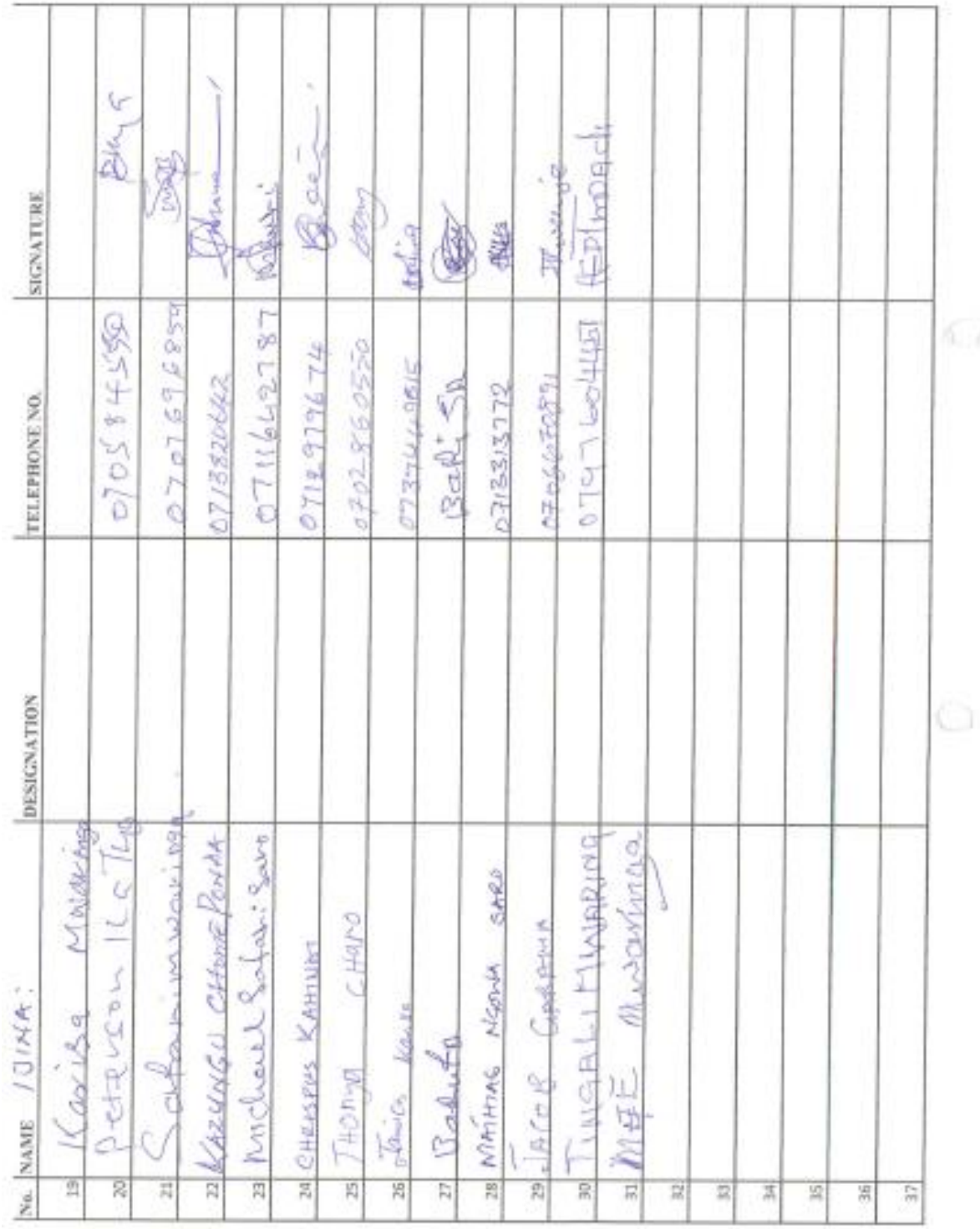

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ii. Minutes

Minutes of Public Consultation Meeting with the Key Stakeholders of Matolani Sub Location and Project Affected People (PAPs) on the Thursday 9th March 2017 at Scorpio Villas Malindi Sub County, Kilifi County at 11:30am.

Introduction

The consultation meeting brought together stakeholders and participants from different groups within the Chakama location and Matolani Sub Location and aimed at informing them of the objectives and progress of the proposed Tembo Sugar Mills Complex Project and to seek views regarding the same.

Objectives of the PPC

The objectives of the PPC were lined out as follows:

1. To inform stakeholders and PAPs of the project progress up to date
2. To seek views regarding the proposed feasibility studies and project
3. Receive queries from participants
4. Build consensus among stakeholders , client and PAPs
5. Consolidate the commitment of stakeholders, Client and PAPs to the Project

Members Present

Attached in the attendance list below

Agenda of the PPC

1. Prayer and Welcoming of all participants
2. Introductions
3. Brief project Description
4. Environmental and Social Impacts Assessment
5. Questions and Answers
6. Conclusions and Recommendations

1. Prayer, welcoming and Introductions

Prayers were led by one of the community members thereafter the Ward Administrator Mr. Yeri run through the program and agenda of the day.

The Magarini Sub County administrator introduced himself to the participants who included the Ward Administrator, Member of County Assembly Ado (MCA), Client (Tembo Sugar Mills Complex Directors), Local Administration (chief and assistant chief Chakama location), EIA experts (Hiagro E.A), project affected people (PAPs), and other interested groups who are the opinion leaders at the proposed project area and gave brief opening remarks.

The EIA expert explained the purpose of the consultation meeting is a constitutional right of the community and they need to be consulted in all project activities so that they can be able to identify the Environmental and Social issues around the proposed project and how they can be mitigated.

2. Brief Project Description

The developer / Client explained the project objectives, scope and location into detail which was done by the Client Representative Mr. Ben Mutua and Tembo Sugar Complex Director Mr. Vinod. A brief project history was given and how the land at Matolani in Hawa wanje was acquired for the proposed project over the years since 2006. Previously the investor was to do a Soda Ash industry which had its own challenges hence the idea was ditched and after various feasibility studies sugarcane plantation was found to be more viable in the area due to the favourable climatic conditions.

Mr. Suraj and Vinod then gave a brief description of the project which he confirmed was initiated by the Shah group of companies and that they are involved in other industries in Kenya such as chemicals, construction materials, furniture, mining, printing and packaging, publication and paints among others. There vast experience in owning and managing big companies made them to embark on the idea of starting a sugar plantation and milling company in Kilifi County under a Memorandum of Understanding which was signed at the Kilifi Investment Forum.

Tembo Sugar Complex project will be unique and special in the sense that they will own their own sugarcane farm and outsource from out growers within the area and it will mill its own sugar and produce other by products such as ethanol, power generation which other firms in Kenya are not doing, also the by-products will be branded made in Kilifi.

It was made known to all that Express Company Limited have worked with the Government of Kenya to acquire land legally under leasehold for a period of 99 years from the year 2009 for approximately 8009 acres and that this land was formally Trust land. Later Express Company subcontracted the land to Tembo Sugar Complex so that they can develop it for Sugar cane and mills factory.

Proposed Project benefits

The participants were later explained the Socio – economic and Environmental benefits of the proposed project as outlined below;

i. Local farmers will be outsourced to grow the sugarcane crop and offered farming incentives such as fertilizers, irrigation pipelines, harvesting machinery and later sell directly to Tembo Sugar Mills who will later deduct their production costs and share the profit with the farmer.
ii. The investment will promote the livelihood status of the people of Matolani and Kilifi in general hence will promote the 3 pillars of vision 2030
iii. There will be direct employment of 700 people and indirect 1500 people
iv. It will contribute to the GDP of Kenya by 0.37%
v. It will lead to sustainable development and improvement climatic change due to vegetation cover
vi. The community will benefit from CSR activities such as: clean drinking water, power generation, food security, improved sanitation, housing, schools, health care centers and technical training centres among others derived in the MOU.

Questions and Answers (Reactions)

Question 1: Chembe Mwaringa; This project we had rejected and we are shocked to learn that a title deed has been obtained?

Question 2: Changawa O Saro; We had rejected the project as it was along the river.The last time they were insisting it was 3km away but from the map it seems that the project will resettle us?

Ward Administrator Mr.Yeri explained to the locals more in detail about the project and how the MOU was signed by local dialect so that they can understand.

Question 3: Senior Chief: Chakama Location explained the concern of the local as they need to know how all those factors came to play. He confirmed that the EIA expert and Tembo Representative Ben Mutua had visited his office several times though the directors have never come personally to meet the locals, he stated the issues of contention is the extend of the land being used or rather land to be clearly demarcated otherwise he has no objection to the project.

Response from the Sub County Administrator

He confirmed that EIA consultant and client representative came to his office the week earlier for the purpose of arranging for a public consultation meeting. Upon further probe the office deemed it fair to have a stakeholder meeting with all the PAPs and leaders such as the MCA and Local administration.

As a county representative he stated that investment is the way to go for the county and that the county of Kilifi supports the project and the investor. The county will not support forceful eviction/ relocation of the locals hence they need the PAPs to be involved from the beginning to the last stage of the project and that the investment will promote economic and social status of Kilifi. He resonated that issues of relocation /resettlement to be handled carefully to prevent hostility and tension build up among the community.

Response from Tembo Sugar Complex on Land Acquisition

A detailed explanation on how the land was acquired was given and Map of the land demarcation was projected for all to see and confirm the location as a true recording on the ground. From 2005 to 2016 the company has been working to get the lease which has taken them a total of around 25 years and later the lease was signed on 6th February 2015 and 25th March 2015 certificate of title was issued for CR 64753 for LR No. 29837 and land survey Plan no. 355745.

Member of County Assembly Comments

He stated that the issue of the people of Matolani is that they have had similar project like the Sajaad issues hence they are sceptical with the proposed project. He quoted the President Uhuru Kenyatta having a manifesto of giving and providing more than 5000 new jobs or employment opportunity to its citizens and that this is one of the projects that will make that dream come to reality and the same goes to the governor who has the pressure of providing the same to his people and its through such investments that all this can be achieved.

Kilfi County gave a manifesto of what needs to be done in terms of investments and investors gave out their different portfolios in different areas of specialization such as mining, agriculture among others.

Question 4: In Chakama Agriculture was more favourable hence the need for the meeting today to have a way forward on various issues such as resettlement, the 500m mark away from the river which is not clear to the farmers, issues of employment, farmers want 3kms from the riparian to be left for them to farm and if the Galana river will be affected as they use it for their irrigation purposes.

Response from the EIA Expert

Resettlement has been considered as to have the PAPs be moved to another location within the same land, to let the PAPs remain where they are or they are relocated within the same land and provided for with water and other social amenities as discussed earlier.

Question 5: Saro Ngoa ; They needed to know how many families are there on the said land as the PAP list read to them earlier was not clear and some family names were missing.

Response from Director Vinod and EIA Expert:

The local area chief and village elders were tasked with the fresh identification all families living within the land and records to be submitted within 7 working days to the client representative.

Question 6: Tingali Maringa Ngali; I have heard all the issues and all the mijis (families) we need to know where all this 300 plus family members will be relocated to.

Question 7: Kahindi Kavija Mawe; Review the land demarcations with the elders, the previous chairlady had recommended that the families to be left alone we wish the project to honor her proposal.

Question 8: Katana Charafondo; the survey was done by the National Government; hence it seems there are hidden agendas between the county and National Government.

Question 9: Karisa Mwaringa; the land demarcation needs to be reviewed and families should be left alone as it was discussed earlier.

Response from Ward Administrator

He recommended that the lands office to be involved in the engagement so that the issues of land demarcation and allocation can be clear to all especially the families to be affected.

He recommended that there was need for continuous consultation in order to arrive at a common consensus.

Response from Tembo Sugar Mills

Ben Mutua: There are marks on the ground, the sole issues is the about resettlement.

Mr. Vinod: As the meeting as revolving around the issues of land and how it was acquired he suggested a small committee to be formed for the sole purpose of verifying the land issues details and reconciliation meeting to be done within 7 working days.

3. Conclusions and Recommendations

It was agreed by all that the small committee to be formed comprising of the local administration, ward administrator , 2 women representative, 4 men representative , 1 minority leader and former county council councillor and later the client representative will join after they have come up with their findings and way forward on the proposed project.

Below are the names of the subcommittee who will serve as PAP representative;

i. Tabu Ngoa Saro
ii. Chrispus Kahindi Moris
iii. Karisa Mwaringa
iv. Tingali Mwaringa Dadi
v. Kahunda Changawa Wanje
vi. Sidi Mae Mwaringa
vii. Julius Chair – Former Councilor
viii. Barufa Barisa Wario – Minority Leader
ix. Kahindi Waji – Woman Representative – Ropi village
x. Esther Sigimae – Woman Representative – Kwa mwanza village

The duties of the committee were clearly spelt out as to identify how the title was acquired, benefits and needs of the community. The committee will report its findings within 7 working days that will be on 21st March 2017.

A.O.B and Closing Remarks

Most of the remarks from the participants were speedy and due diligence on the part of the committee outcomes and findings. The meeting was closed at 5:00 pm with a word of prayer.

VIII. Report on Various Public Participation Meetings

PROPOSED NUCLEUS SUGARCANE PLANTATION AND SUGAR COMPLEX PROJECT TO BE SET UP BY TEMBO FARMING LTD. AND TEMBO SUGAR MILLS LTD RESPECTIVELY

REPORT DATED 12TH JUNE 2017 PREPARED BY COMMITTEE COMPRISING OF FOLLOWING MEMBERS:

1. Mr. Silas Ngundo	Sub County Administrator (Magarini)
2. Mr. Stanley Karisa Kenga	Member County Assembly (Adu)
3. Mr. Vincent Yeri Chengo	Ward Administrator (Adu) & Secretary of Committee
4. Mr. Solomon K. Mubashirry	Chief (Chakama Location)
5. Mr. Saro Ngowa	Chairman of Committee
6. Mr. Karisa Mwaringa	Vice-Chairman of Committee
7. Mr. Julius Chea	Asst. Secretary of Committee
8. Mr. Samson Zia	Committee Member
9. Mrs. Sidi Mae Mwaringa	Committee Member
10. Mr. Tingali Mwaringa Dadi	Committee Member
11. Mr. Chrispus Kahindi	Committee Member
12. Mrs. Kaunda Changawa Mlanda	Committee Member
13. Mr. Kashutu Sitembo	Committee Member

INTRODUCTION

This report was made necessary after an investor called Tembo Farming Ltd and Tembo Sugar Mills Ltd came to the Sub County Administrator's on 2nd March 2017 to introduce themselves and commence their investment in Kisiki Sub Location of Chakama location in Magarini Sub County, for setting up of a nucleus Sugarcane Plantation on 3300 hectares of land and Sugar complex on 82 hectares of land, comprising of 1500 TCD Sugar factory (expandable to 2500 TCD); 30 klpd Distillery to manufacture ENA / Ethanol and 16MW co-gen plant.

The local administration felt that it would be inappropriate to ambush the people of this said Sub location with the proposed project without proper introduction to the concerned community people living on the project land. A meeting of concerned

1 | Page

stakeholders was therefore convened at Malindi on 9th March 2017 comprising of the local leadership, representatives of the people of Kisiki, investors, the political class and both the National Government and the County Government of Kilifi.

The company officials were invited to highlight the project details and its impact on the country, county and the people around the project. The company officials informed that they have formed two companies, namely Tembo Farming Ltd. (TFL) and Tembo Sugar Mills Ltd. (TSML) in Kenya to engage in nucleus sugarcane plantation and project to set-up a Sugar Complex comprising of Sugar plant of 1500 TCD expandable to 2500TCD; 30 KLPD Distillery and 16 MW plant – 8 MW in phase 1 increasing to 16 MW in phase 2 to manufacture Sugar - 49,500 MTs in Phase 1 increasing to 82,500 MTs in Phase 2; Ethanol/ENA – 7.4 mn litres and Renewable Energy – 8 MW in phase 1 increasing to 16 MW in phase 2.

They highlighted the following benefits of the project:

a. TFL & TSML are in line with Kenya Vision 2030 and MTP II. It will significantly assist the Government of Kenya to meet the objectives under the Economic and Social Pillars.
b. TFL and TSML will provide direct employment to over 1000 individuals including 1500 farmers, which could translate to over 12,500 jobs in Kenya.
c. TSML will result in an earning in foreign exchange from export of ethanol and a saving in foreign exchange from avoided imports of sugar

The company officials further said that the Tembo Projects are of National Importance & Regional Pride; will manufacture import substitute products; will set up State-of-the-art facilities; will be technologically capable of meeting high quality standards and will lower manufacturing costs due to high mechanization, access to skilled manpower & high product yields.

They explained how they acquired the land for the project estimated to be 3,382 Hectares (Three thousand, three hundred and eighty two hectares). In their briefing, they indicated that there were only six families living in the project land area, at the time of land acquisition process that began in the year 2006-07, whom they intended to compensate to relocate to another area.

The representatives of the families living on the project land were surprised by the information and argued that the engagement they had with the investor's

representative about ten years ago did not actually materialize and that they could not understand how the ownership of land was acquired. They suggested that the representatives of the families living in the project land, be involved to identify the people living in that area.

During the discussions, it was decided that a committee be formed to come up with a report on the status of people living in the project land and make recommendations. The committee is to also examine the validity of the ownership of the land and the fate of the families living in the area, which were purported to be more than six families.

The persons present at the meeting elected the following committee members:

1. Mr. Silas Ngundo	Sub County Administrator (Magarini)
2. Mr. Stanley Karisa Kenga	Member County Assembly (Adu)
3. Mr. Vincent Yeri Chengo	Ward Administrator (Adu) & Secretary of Committee
4. Mr. Solomon K. Mubashirry	Chief (Chakama Location)
5. Mr. Saro Ngowa	Chairman of Committee
6. Mr. Karisa Mwaringa	Vice-Chairman of Committee
7. Mr. Julius Chea	Asst. Secretary of Committee
8. Mr. Samson Zia	Committee Member
9. Mrs. Sidi Mae Mwaringa	Committee Member
10. Mr. Tingali Mwaringa Dadi	Committee Member
11. Mr. Chrispus Kahindi	Committee Member
12. Mrs. Kaunda Changawa Mlanda	Committee Member
13. Mr. Kashutu Sitembo	Committee Member
14. Mr. Benjamin Mutua	Tembo Representative

This committee was given a timeline of two weeks to complete this report.

The committee held its first meeting on 16th March 2017, where it elected the office bearers. The following were elected.

1. Mr. Thabu Ngowa Saro- Chairman
2. Mr. Karisa Mwaringa Mae- Vice Chairman
3. Mr. Vincent Yeri Chengo- Secretary

4. Mr. Julius Chea- Assistant Secretary

And the rest were members.

The committee physically visited the project land several times to ascertain the facts.

CHALLENGES

There were many challenges in carrying out the activities of the committee, majorly:

1. Hostile reception by the locals
2. Misunderstandings by the locals and even between the committee members
3. The local felt that some elected members can not represent them properly
4. The area is vast and could not be visited in a day or two
5. Residents were unwilling to give their details in efforts to identify all the families residing in the area.
6. Locals felt that the project land was unfairly taken by investors.

The committee and the local leadership had to organize more meetings to sensitize members on the role of the committee.

There were many informal meetings both in Malindi and Kisiki Sub location trying to give the residents civic education and make them understand their role in this report as important.

These meetings delayed this report but through consultations and guidance from relevant offices, the committee was able to carry out its mandate.

FINDINGS

After having all formal and informal meetings and consultation the committee came up with the following:

That ;

1. The title deed of the project land, namely Land Reference No. 29837 was acquired legally and procedurally. Copies of the Minutes of the meetings of the County council of Malindi were availed and the same supported the allotment of the land, admeasuring 3,382 hectares for 99 years lease for Industrial development and Agricultural use by the Government of Kenya.

2. The investor's purpose of application corresponds with Letter of Application since they applied for Soda Ash and Agriculture related activities.
3. Proper survey was carrying out and land was earmarked for allotment to the company.
4. It is proven beyond doubt that the project company holds clear and marketable title of the project land and the families and their members living on the project land do not have any right over the land legally whatsoever and they can be termed as "squatters".
5. There are 75 households, comprising 46 in Robi village and 29 in Kwamwanza village, are residing within the project land, as detailed below:

A) No. of households in Ropi Village - 46 (Forty Six Only)
Demographic profile:

	MALE	FEMALE	TOTAL
BELOW 10 YEARS	49	50	99
10 - 17 YEARS	22	38	60
18 - 30 YEARS	56	52	108
31 - 40 YEARS	4	12	16
41 - 50 YEARS	14	16	30
51 YRS AND ABOVE	8	1	9
TOTAL			322

The committee prepared the details of names, ID number, phone number and age of the persons living in each of the households, which is attached.

B) No. of households in Kwamwanza Village - 29 (Twenty Nine Only)
Demographic profile:

	MALE	FEMALE	TOTAL
BELOW 10 YEARS	24	33	57
10 -17 YEARS	20	12	32
18 - 30 YEARS	14	16	30
31 - 40 YEARS	3	2	5
41 - 50 YEARS	7	1	8
51 YRS AND ABOVE	7	3	10
TOTAL	75	67	142

The committee prepared the details of names, ID number, phone number and age of the persons living in each of the households, which are also attached.

6. There are about 20 people who do not reside in the area, but claim to use portion of the project land.
7. There are also other people who do cultivation on the project land, but do not claim so, as they do not own the land.
8. There are livestock and animal husbandry activities (including keeping of animals like goats, cattle and poultry) carried out by the families residing on the project land, especially along the river.
9. The cultivation activities carried out by the families including growing of crops ranging from long term plants such as coconut trees, mango trees, sugarcane, pawpaw's, oranges and short term crops such as maize ,beans, cowpeas, green peas etc. Attached are photos of some of the crops, homes, activities happening at the project land.
10. There are public utilities like schools like Mwanza Early Child Development nursery school and local religious make-shift site, within the project land.
11. The project company had proposed suitable relocation of families living on the project land, by offering alternate land, adequate food security, creation of sustainable income source and employment opportunities. However, the families have decided not to relocate, and as a result it does not call for Resettlement Action Plan (RAP).
12. The families living on the project land consented to the setting up of the project and gave various proposals to the committee in order to facilitate the project on the project land. After careful consideration of the various proposals put forward by the representatives of the families at the public baraza held on the 26th May 2017, the committee has made the following recommendations for consideration by the project company.

PROPOSED RECOMMENDATIONS:

i. The investor to stick to the 500m boundary from the river and allow the families to continue to use the land that they are currently using.
ii. Subdivision of the land area used by the families living in Tembo project land to be done.
iii. The families living in the project land welcomes the project and proposes setting up of a C.S.R committee, to act as a link between the two.
iv. Employment- the members of the families living in Tembo project land should be given preference for employment.

v. The project company to upgrade the primary school and build infrastructure such as primary healthcare facilities and police station.
vi. The project company to assist the families living in Tembo project land for agricultural activities by providing mbolea (fertilizer) and farming equipment, like tractors
vii. The project company to provide scholarship and bursary kit to assist students to advance in education from secondary, tertiary and university institutions. The project company to also sponsor sports and games.
viii. The project company should be compensated for the land area used by the families within the project land, by providing land in the adjacent area.
ix. Improve the natural water storage i.e. lakes Ropi, Guyogubu and Shakajila and others (Sameta) to benefit both parties.
x. The project company to assist families in production and refining of Palm wine and in marketing to other areas of the country
xi. The company to adhere to Government laws on environment to prevent any negative impacts caused by the operations and activities of the company.
xii. The project company to look for markets for the agricultural produce of the families, living in the project land.

CONCLUSION

The committee records its appreciation and thank all stakeholders involved in this activity for efforts starting with the office of the Sub County Administrator-Magarini, the investor, local leadership, the MCA'S Office and more so the residents of Hawewanje/Kisiki sub location of Chakama location. You have made this a success.

The committee, urge both parties to sit together and consider the recommendations, in the interest of the country, county, community and the project company. This will go a long way in building trust and confidence and to enhance co-existence between the parties.

Thank you. God bless us all.

REPORT PREPARED BY:

VINCENT YERI CHENGO - SECRETARY/WARD ADMINISTRATOR ADU

Public Participation Photos

IX. TFL Response to Public Concerns

i. The investor to stick to the 500m boundary from the river and allow the families to continue to use the land that they are currently using.

The families who are living on the project land having acknowledged that they are squatters, have understood and accepted the impact of the project, the Tembo management out of goodwill and good neighborliness agree to accommodate them within the project land, subject to the following conditions:

a) Every family shall retain their exact size of land, as identified during the enumeration exercise.

b) No person has a right to transfer, sell, distribute or deal in the said land or any portion of the said land to any third party. In case they wish to relinquish the right to use of the said land, the right will continue to vest with the project company.

The company shall not be liable for any damages; direct or indirect loss to any party, persons or livestock as a result of company operations or failure.

The right to use of the land by the families shall automatically lapse, if any member of the concerned family has involved himself/herself in activities that jeopardise the smooth operations of the company or indulges in any anti-project activities; illegal / criminal activities; or any activity that is against the interest of project company, management and its officials.

Tembo will maintain the riparian reserve as per the Water Act and Water Resource Management Authority guidelines.

ii. Subdivision of the land area used by the families living in Tembo project land to be done.

County Government of Kilifi to take necessary action in this regard, as per the laws of the land.

iii. The families living in the project land welcomes the project and proposes setting up of a C.S.R committee, to act as a link between the two.

Tembo management thanks the families for welcoming the project. CSR committee will be formed, after implementation of the project in due consultation with the County, Sub-county officials and Local administration.

iv. Employment- the members of the families living in Tembo project land should be given preference for employment.

Tembo project shall give preference to the members of the families living on the project land, while giving employment, provided they are found to be physically and medically fit for unskilled jobs. For skilled jobs, the members of the families will be given preference, if they possess requisite skill sets, technical qualification and experience required for the job.

v. The project company to upgrade the primary school and build infrastructure such as primary healthcare facilities and police station.

As part of CSR activities, Tembo will develop the primary school and set up technical training centre and agriculture training centre to impart training to the locals. Primary healthcare facilities will also be developed for the benefit of the local people.

To ensure safety of the people living in and around project land, we will request the concerned authorities to have a Police Station in the project area.

vi. The project company to assist the families living in Tembo project land for agricultural activities by providing mbolea (fertilizer) and farming equipment, like tractors

Tembo agrees to assist the families living in the Tembo project land, provided they undertake farming to meet their food security requirements and also growing of sugarcane. Need based support shall be provided by providing mbolea and farming equipment at cost, which shall be recovered from sale proceeds of cane to be supplied to the company.

vii. The project company to provide scholarship and bursary kit to assist students to advance in education from secondary, tertiary and university institutions. The project company to also sponsor sports and games.

This also fall under the purview of CSR activities and the same shall be implemented in consultation with the local administration.

viii. The project company should be compensated for the land area used by the families within the project land, by providing land in the adjacent area.

County Government of Kilifi to implement this, in conjunction with steps to be taken under item (ii) above.

ix. Improve the natural water storage i.e. lakes Ropi, Guyogubu and Shakajila and others (Sameta) to benefit both parties.

Tembo will develop the existing natural reservoirs inside the project land.

x. The project company to assist families in production and refining of Palm wine and in marketing to other areas of the country

Although this activity is outside the purview of the main objects of the company, we will however explore the possibility to encourage the families for the improvement of the palm wine production and its marketing.

xi. The company to adhere to Government laws on environment to prevent any negative impacts caused by the operations and activities of the company.

Tembo is a responsible corporate citizen and believes in positive contribution to the environment and shall meet the norms of Kenya Pollution Control Board, as prescribed.

xii. The project company to look for markets for the agricultural produce of the families, living in the project land.

Tembo will support the families in exploring the markets for their agricultural produce

X. TFL Farm Layout